STRUCTURAL GENERAL REQUIREMENTS

1. GENERAL NOTES

1. CHECK ALL DIMENSIONS ON STRUCTURAL DRAWINGS WITH ALL OTHER CONTRACT DRAWINGS. DIMENSIONS AND ELEVATIONS RELATING TO STRUCTURAL MEMBERS AS SHOWN ON THESE DRAWINGS GOVERN THE STRUCTURAL WORK. REPORT ANY INCONSISTENCIES BEFORE PROCEEDING WITH CONSTRUCTION. DO NOT SCALE THESE DRAWINGS. THE ATTACHED DRAWINGS AND SPECIFICATIONS RELATE ONLY TO THE SCOPE OF WORK AND CONTRACT FOR WHICH NUNA BURNSIDE HAS BEEN RETAINED. THESE DOCUMENTS MAY BE FOR COMPONENTS, OR LIMITED PORTIONS OF, THE TOTAL PROJECT BEING UNDERTAKEN BY THE OWNER AND CONTRACTOR. REVIEW THESE DOCUMENTS IN THE CONTEXT OF THE ENTIRE PROJECT AND ITEMS PRODUCED BY OTHER FIRMS OR DISCIPLINES.

2. THE STRUCTURAL DESIGN IS BASED UPON THE INFORMATION PROVIDED IN THE FOLLOWING REPORTS: AMEC GEOTECHNICAL REPORT YX00756, DATED DECEMBER 2005, AMEC GEOTECHNICAL MEMO YX877, DATED SEPTEMBER 20, 2012.

3. THESE DRAWINGS ARE THE PROPERTY OF NUNA BURNSIDE LTD., ARE PROTECTED BY COPYRIGHT AND ARE NOT TO BE REPRODUCED IN ANY MANNER WITHOUT WRITTEN APPROVAL.

4. THESE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION UNLESS NOTED AS "ISSUED FOR CONSTRUCTION" AND SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER FROM NUNA BURNSIDE LTD.

5. THESE DRAWINGS SHOW THE COMPLETED STRUCTURE FOR ITS INTENDED FINAL USE AND OCCUPANCY AS STATED. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY AND FOR DESIGN, INSTALLATION, AND SUPERVISION OF ALL TEMPORARY BRACING, SHORING AND CONSTRUCTION LOADS AND SUPPORTS DURING CONSTRUCTION. PROTECT WORK AND MATERIALS FROM HAZARDS AND ENVIRONMENTAL CONDITIONS THAT WOULD BE DETRIMENTAL TO THE FINISHED PRODUCT, CONDITIONS SUCH AS FLOODING, FROST, EXTREME WEATHER, UNEVEN SUPPORTS FOR STORAGE OF FRAGILE MATERIALS AND SO ON. THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE CLEAN UP AND RECYCLING OF WASTE OR UNUSED MATERIALS.

6. STANDARD OR TYPICAL DETAIL SHEETS ON THIS PROJECT SHOW STRUCTURAL INTENT RATHER THAN ACTUAL CONDITIONS FOR THIS PROJECT.

7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED. ELEVATIONS ARE IN METRES UNLESS NOTED.

8. THE CONTRACTOR SHALL BE EXPERIENCED IN THE WORK REQUIRED. WORK SHALL BE COMPLETED IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICE OF THE INDUSTRY.

9. THE CONTRACTOR IS REQUIRED TO SCHEDULE ALL INDEPENDENT INSPECTION AND TESTING SERVICES. REPORTS ARE TO BE SUBMITTED TO THIS OFFICE FOR REVIEW. THE CONTRACTOR IS TO KEEP THIS OFFICE UPDATED WITH RESPECT TO SITE PROGRESS ON A PERIODIC BASIS, TO ALLOW FOR PERIODIC FIELD REVIEWS BY THE ENGINEER. PROVIDE AT LEAST 5 BUSINESS DAYS MINIMUM NOTICE TO THE ENGINEER FOR ANY REQUIRED SITE VISITS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL SITE CONDITIONS, UTILITY LOCATES, AND REPORT ANY DISCREPANCIES OR UNSATISFACTORY CONDITIONS IMPACTING THE DESIGN, IMMEDIATELY TO THE ENGINEER.

11. SUBMIT ENGINEERED ERECTION DRAWINGS FOR ALL OFF SITE FABRICATED COMPONENTS AND ASSEMBLIES, FOR REVIEW AND COORDINATION OF DESIGN ELEMENTS ONLY BEFORE FABRICATION.

12. CONNECTION DESIGN BETWEEN ALL SIMILAR MATERIALS, SUCH AS STEEL TO STEEL, OR WOOD TO WOOD ARE TO BE DESIGNED BY THE SUPPLIER'S ENGINEER UNLESS NOTED.

13. ALL STRUCTURAL MEMBERS ARE LOADED CONCENTRICALLY AT MEMBER CENTERLINES UNLESS NOTED.

2. DESIGN CODES AND LOADING

1. THE DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 NATIONAL BUILDING CODE. THE CONSTRUCTION AND TEMPORARY WORKS MUST ALSO BE IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS (LATEST EDITIONS), LOCAL REGULATIONS AND BYLAWS.

2. DESIGN STANDARDS
   1. CSA CAN/CSA-O86-09 "ENGINEERING DESIGN IN WOOD"
   2. CSA A371-04 "MASONRY CONSTRUCTION FOR BUILDINGS"
   3. CSA S304. 1-04 "DESIGN OF MASONRY STRUCTURES"
   4. CSA CAN/CSA-A23.1-09 "CONCRETE MATERIALS & METHODS OF CONCRETE CONSTRUCTION"
   5. CSA CAN/CSA-A23.3-04 "DESIGN OF CONCRETE STRUCTURES"
   6. CSA CAN/CSA-A23.4-09 "PRECAST CONCRETE – MATERIAL AND CONSTRUCTION"
   7. CSA CAN/CSA-S136-01 "COLD FORMED STEEL STRUCTURAL MEMBERS"
   8. CSA CAN/CSA-S16-09 "LIMIT STATES DESIGN OF STEEL STRUCTURES"
   9. CANADIAN FOUNDATION ENGINEERING MANUAL 4TH EDITION/2006

   ALL LOADS SHOWN ON DRAWINGS ARE UNFACTORED SERVICE LOADS IN KN AND KPA UNLESS OTHERWISE NOTED. DESIGN LOADS: BASED ON 2010 N.B.C. AS NOTED BELOW OR SHOWN ON PLANS.

   ALL DESIGN LOADS ARE NOT TO BE EXCEEDED DURING CONSTRUCTION.

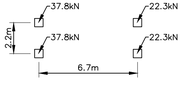
   LOADS AND EFFECTS
   A) IMPORTANCE CATEGORY (DIV. B, TABLE 4.1.2.1B.) POST DISASTER (SEWAGE TREATMENT FACILITY)

   B) DEAD LOADS: 0.75 KPa

      ALLOWANCE FOR MECHANICAL AND ELECTRICAL 0.24 KPa

   MEZZANINE:
   SELF WEIGHT 0.75 KPa
   CONCRETE TOPPING 50 mm THICK AVERAGE 1.14 KPa
   MISC ELECTRICAL AND MECHANICAL ON UNDERSIDE 0.25 KPa
   TOTAL 2.14 KPa

   C) LIVE LOADS DUE TO USE AND OCCUPANCY (UNLESS CROSSED AND NOTED ON PLANS):
   GROUND FLOOR (EXCLUDING TRUCK AREA) 4.8 KPa
   EXIT STAIRS AND CORRIDORS 4.8 KPa
   MEZZANINE FLOOR 4.8 KPa
   TRUCK AREA:
   TABLE 4.5.3 (MINIMUM DISTRIBUTED LOAD) 12.0 KPa
   TABLE 4.5.10 (MINIMUM CONCENTRATED LOAD) 54.0 kN
   IN ADDITION CONSIDERATION HAS BEEN GIVEN FOR THE FOLLOWING VEHICLE:
   VAC-CON 3.5 YARD V-230 COMBINATION MACHINE
   FRONT AXLE CAPACITY: 10,000 lb (44.5 kN)
   REAR AXLE CAPACITY: 17,000 lb (75.6 kN)



   C.) LOADS DUE TO SNOW, ICE AND RAIN: (POST DISASTER)
   IMPORTANCE FACTOR (Is) (ULS) 1.25 (SLS) .90
   ROOF SPECIFIED SNOW LOAD,
   1/50 GROUND SNOW LOAD (Ss) 3.00 kPA
   1/50 GROUND RAIN LOAD (Sr) .20 kPA
   WIND EXPOSURE FACTOR (Cw) 1.0
   BASIC SNOW LOAD FACTOR (Cb) .8
   (CASE 1): 3.25 kPA
   (CASE 2) UNBALANCED LOADING, FIGURE G-1 NBCC COMMENTARY G): 3.95 kPa

   IN ADDITION TO THE BASIC LOADS NOTED, DESIGN RELATED TO THE TRANSMISSION AND SUPPORT OF LOADS FROM THE ROOF SYSTEM MUST CONSIDER THE FOLLOWING:

   TRUSS SYSTEMS: THE TRUSS SYSTEM FOR THE EXISTING BUILDING AND PROPOSED ADDITION MUST BE INDEPENDENT. ALLOW FOR FALL PROTECTION LOADS, AND MISC. FRAMING AS NECESSARY TO CREATE ROOF LINES.

   E.) HOIST LOADS:
   AS PROVIDED, THE HOIST SYSTEM IS EXPECTED TO EXPERIENCE ONLY ONE OF THE FOLLOWING LOADS @ ANY TIME (UNFACTORED)
   MONSTER AUGER: 1480# (6.6kN)
   GRINDER: 1250# (5.6kN)
   EFFLUENT PUMP MOTOR: 600# (2.7kN)

GENERAL NOTES CONT'D.

   F) LOADS DUE TO WIND: TABLE C-2, DIV. B, 2010 NBCC
   IMPORTANCE FACTOR (Iw) (ULS)1.25 (SLS) 0.75
   (q) 1/50 HOURLY WIND PRESSURE 0.60 kPa

   G) LOADS DUE TO EARTHQUAKES: TABLE C-2, DIV. B. NBCC 2010
   Sa(0.2) = 0.12
   Sa (0.5) = 0.056
   Sa(1.0) = 0.023
   Sa(2.0) = 0.006

   PEAK GROUND ACCELERATION (PGA) 0.059
   SITE CLASS: B (ROCK)
   Fa = 0.80
   Fv = 0.60
   Ie = 1.0
   IeFaSa (0.2) =0.10

   THE SUPERSTRUCTURE LATERAL STABILITY IS BASED UPON A WOOD FRAMED WITH WOOD BASE PANELING SHEAR WALL SYSTEM. LATERAL LOADS ARE TRANSFERRED TO THE CONCRETE FOUNDATION THROUGH SHEAR CAPACITY OF ANCHOR BOLTS, AND TRANSFERRED TO THE STEEL PILE SYSTEM THROUGH SHEAR ANCHORS. (DOWELS)

3. FOUNDATION SYSTEM (LIMIT STATES DESIGN)
   (NBC, DIV. B, 4.1.3., 4.2.)

   THE FOUNDATIONS ARE DESIGNED AS ROCK SOCKETED PILES TO BE DRILLED INTO SOLID ROCK IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND MEMO NOTED IN THE GENERAL NOTES.

   FACTORED BEARING RESISTANCE OF PILES MEETING THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER ARE DESIGNED TO ACHIEVE A BEARING RESISTANCE OF 17,500 kPa OVER THE BASE OF THE GROUTED PILE.

   FACTORED UPLIFT RESISTANCE OF PILES MEETING THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER ARE DESIGNED TO ACHIEVE AN UPLIFT RESISTANCE OF 150kPa OVER THE AREA OF CONTACT WITH THE ROCK.

4. SHOP DRAWINGS

1. SUBMIT WHITE PRINTS OF ERECTION PLANS AND SHOP DETAILS OF STRUCTURAL COMPONENTS, FOR REVIEW PRIOR TO FABRICATION. ELECTRONIC VERSIONS WILL BE ACCEPTED IN .PDF FILE FORMAT ONLY. REVIEW OF SHOP DRAWINGS IS A PRECAUTION AGAINST OVERSIGHT OR ERROR. IT IS NOT A DETAILED CHECK AND SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF RESPONSIBILITY FOR MAKING THE WORK ACCURATE AND IN CONFORMITY WITH THE CONTRACT DOCUMENTS. MAINTAIN A SET OF REVIEWED DRAWINGS ON SITE. DRAWINGS ARE TO BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE TERRITORY OF NUNAVUT, FOR THE FOLLOWING SUBMISSIONS: TRUSSES, STRUCTURAL LIGHT STEEL FRAMING, MISC. METALS AND TEMPORARY WORKS.

   SUBMISSIONS ARE EXPECTED FOR THE FOLLOWING SPECIFICATION DIVISIONS WHICH DO NOT REQUIRE A SEAL BY A PROFESSIONAL ENGINEER: REINFORCING STEEL FOR CAST IN PLACE CONCRETE AND STRUCTURAL STEEL COMPONENTS .

5. INSPECTION AND TESTING

1. THE ENGINEER AND THE OWNER WILL COORDINATE THE APPOINTMENT AND PAYMENT OF AN INDEPENDENT INSPECTION AND TESTING AGENCY, WHICH IS IN ADDITION TO PERIODIC GENERAL PROJECT REVIEW BY THE ENGINEER. THE COST OF THE INSPECTION SHALL BE PAID BY THE OWNER. WORK WILL BE INSPECTED TO ENSURE CONFORMANCE WITH THE CONTRACT DOCUMENTS. WORK OF THE FOLLOWING DISCIPLINES: CONCRETE, REINFORCING STEEL, STRUCTURAL STEEL, STEEL JOISTS, COLD FORMED STEEL INCLUDING STEEL DECK, LIGHT STEEL FRAMING JOISTS AND STUDS, PRECAST CONCRETE, AND MASONRY REQUIRE INDEPENDENT INSPECTION AND TESTING. WORK SHALL BE SCHEDULED WITH THE CONTRACTOR AND COPIES OF ALL REPORTS FORWARDED TO THE ENGINEER.

FOUNDATION AND STRUCTURAL SLAB

NOTES

1. SEE GENERAL AND CONCRETE NOTES, RELATED DIVISIONS OF THE CONTRACT SPECIFICATIONS AND APPENDED GEOTECHNICAL INFORMATION IN SPECIFICATIONS.

2. THE AREA WITHIN THE BUILDING SHALL BE STRIPPED TO A MINIMUM OF 600MM BELOW FINISHED FLOOR DEPTH. AREAS OF UNSUITABLE FILL OR FROZEN MATERIAL TO BE REMOVED AND REPLACED WITH SUITABLE GRANULAR MATERIAL COMPACTED TO 98% SPDD.

3. AS NOTED ON THE DRAWINGS, ALL CONCRETE IN CONTACT WITH GROUND WILL RECEIVE 100MM OF RIGID INSULATION, FOUNDED ON A GRANULAR 'B' 1300MM WORKING BASE COMPACTED TO 98% SPDD AS A WORKING PAD.

4. REMOVED MATERIAL FROM UNDER THE BUILDING AREA IS NOT TO BE USED WITHIN THE BUILDING AREA, FOR BACKFILLING TRENCHES, OR PITS OR RAISING GRADES OR FOR FILL AGAINST THE BUILDING, UNLESS SPECIFICALLY TESTED AND APPROVED FOR USE BY THE GEOTECHNICAL CONSULTANT.

5. INSTALL HSS PILES AS PER GEOTECHNICAL RECOMMENDATIONS, PLUMB AND TRUE. HSS PILES TO BE EMBEDDED A MINIMUM 2M INTO FRESH ROCK WITH AN ANNULUS OF 50MM MORE THAN SPECIFIED PILE DIAMETER.

6. ANTICIPATED TIMING FOR INSTALLATION IS BETWEEN JANUARY AND APRIL OF THE YEAR TO MAKE USE OF THE ACTIVE LAYER OF MATERIAL BEING FROZEN.

7. INSTALLER TO PROVIDE CASING IN THE EVENT OF POTENTIAL SEEPAGE OR SLOUGHING WITHIN THE EXCAVATION. INSTALLER TO CONSIDER THE NEED FOR TREMIE TECHNIQUES FOR GROUT PLACEMENT IF WATER IS FOUND AT THE BASE OF THE EXCAVATION.

8. PLACE NON-SHRINKABLE GROUT SUITABLE FOR THIS USE (SIKA GROUT ARCTIC 100) IN THE SOCKET PORTION OF THE BOREHOLE TO THE TOP OF THE FRESH ROCK ELEVATION IMMEDIATELY AFTER CLEANING THE HOLE.

9. USE CENTRALIZERS DURING PLACEMENT OF THE PILE TO ENSURE CENTERING WITHIN THE BOREHOLE. FILL ANNULAR SPACE AROUND PILE WITH A SAND SLURRY AS PER THE SPECIFICATIONS, AND THE INTERIOR OF THE PILE WITH DRY DRILL CUTTINGS TO WITHIN 1M OF THE CUTOFF ELEVATION. VERTICAL AXIS OF PLACEMENT MUST BE WITHIN 20MM OF DESIGNED CENTRELINE LOCATION FOR EACH PILE

10. UPPER 2M OF THE PILES ARE TO BE COATED WITH ARCTIC HEAVY GREASE, THEN WRAPPED WITH TWO LAYERS POLYETHYLENE SHEETS ALSO COATED WITH ARCTIC HEAVY GREASE.

11. PLACE 100MM RIGID INSULATION UNDER ALL PORTIONS OF THE FLOOR SYSTEM; GRADE BEAMS TO BE PLACED WITH MINIMUM 100MM GEOSPAN VOID FORM UNDER THE BEAMS TO PREVENT INFLUENCE FROM POTENTIAL SETTLEMENT OR EXPANSION OF SOILS UNDER THE BEAMS.

12. FOUNDATION DIMENSION, IF SHOWN ON THE STRUCTURAL PLANS, ARE ACTUAL AND ARE TO THE FACE OF FOUNDATION WALLS OR TO THE GRID LINES UNLESS NOTED. REPORT ANY DIMENSIONAL DISCREPANCIES WITH THE ARCHITECTURAL PLANS PRIOR TO PROCEEDING.

13. LOCATIONS OF LAP SPLICES IN GRADE BEAMS MUST BE AS PER PLAN TO ENSURE LOAD TRANSFERRANCE.

14. STRUCTURAL SLAB ON GRADE TO BE REINFORCED AS PER PLANS; NOTE THAT THE DIRECTIONS AND PLACEMENT OF THE BARS AS MATS OF STEEL IS CRITICAL TO PROPER TRANSFERRANCE OF THE LOADS.

FOUNDATION AND SLAB-ON-GRADE CONT'D.

15. CONCRETE BEAMS TO BE CURED MINIMUM 7 DAYS TO 70% OF CONCRETE STRENGTH PRIOR TO PLACEMENT OF THE SLAB CONCRETE.

16. CONCRETE SLABS TO BE WET CURED FOR A MINIMUM OF 7 DAYS. PROVIDE FINISH AS PER CAST-IN-PLACE CONCRETE NOTES. REFER TO ARCHITECTURAL FOR SPECIAL FINISHES. ALSO REFER TO TYPICAL OR STANDARD DETAIL SHEETS. DO NOT EXCEED MINIMAL WORKMAN LOAD ON SLAB FOR MINIMUM OF 7 DAYS AFTER POUR; ON RECEIPT OF CYLINDER BREAKS SHOWING 70% OF STRENGTH, 50% OF DESIGN LOAD CAN BE APPLIED TO SLAB. ONCE 28 DAYS FROM POUR AND 100% STRENGTH IS ACHIEVED, FULL LOAD CAN BE APPLIED TO SLAB.

16. PROTECT FOOTINGS, WALLS, SLABS-ON-GRADE AND ADJACENT SOIL AGAINST FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION.

17. THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR TRENCHES OR ALONG STEPPED FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10, MAXIMUM STEP APPROXIMATELY 600 mm. DO NOT EXCAVATE BELOW THE ELEVATION OF EXISTING FOOTINGS.

18. DO NOT BACKFILL AGAINST WALLS RETAINING EARTH, UNTIL ELEMENTS PROVIDING LATERAL SUPPORT ARE COMPLETED. PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES OF OTHER WALLS, OR GRADE BEAMS, BELOW GRADE, WITH A MAXIMUM DIFFERENTIAL OF 600 mm.

19. LOWER INTERIOR WALL AND COLUMN FOOTINGS WHERE REQUIRED TO SUIT MECHANICAL STORM AND SANITARY LINES AND OTHER UNDERGROUND UTILITIES. THE MAXIMUM SLOPE FROM THE UNDERSIDE OF THE ADJACENT FOOTING TO THE BOTTOM OF THE UTILITY EXCAVATION IS 7 VERTICAL TO 10 HORIZONTAL.

20. AN "SDF" NOTATION ON THE DRAWING INDICATES THAT THE FOOTING IS TO BE STEPPED DOWN IN THE DIRECTION OF ANY ARROW. AN "SC" NOTATION INDICATES A SAW CUT OR TOOLED JOINT IN THE CONCRETE SLAB. A "CJA" REFERS TO A CONTROL JOINT IN THE MASONRY WALL ABOVE. ALL JOINTS ARE NOT SHOWN ON THE STRUCTURAL PLANS – COORDINATE REQUIREMENTS WITH THE ARCHITECTURAL DRAWINGS AND SPECS.

21. FOR CONCRETE "HOUSEKEEPING" PADS OR LOCKER BASES, AND ANY OTHER NON-STRUCTURAL CONCRETE PADS, BOLLARDS OR CURBS, REFER TO THE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR COORDINATION.

22. PRIOR TO THE START OF WORK ARRANGE FOR A PROJECT MEETING OF ALL PARTIES ASSOCIATED WITH THE PLACEMENT OF CONCRETE SLABS ON GRADE, PRESIDED BY THE ARCHITECT, WITH THE REPRESENTATIVES OF THE FOLLOWING: THE CONTRACTOR, THE OWNER, CONCRETE SUPPLIER, BACKFILLING AND COMPACTION CONTRACTOR, STRUCTURAL ENGINEER, AND SOIL CONSULTANT. SPECIFICATIONS FOR THE WORK OF THIS SECTION SHALL BE REVIEWED TO ENSURE A COMPLETE UNDERSTANDING OF THE REQUIREMENTS AND RESPONSIBILITIES RELATIVE TO THE WORK, MATERIALS AND THEIR HANDLING AND STORAGE, WORK SEQUENCE, QUALITY CONTROL, STAFFING, RESTRICTIONS ON AREAS OF POUR AND OTHER MATTERS AFFECTING THE CONSTRUCTION SO AS TO FACILITATE COMPLIANCE WITH THE INTENT OF THIS SECTION.

CAST IN PLACE CONCRETE

GENERAL

1. CONFORM TO THE GENERAL REQUIREMENTS AND SPECIAL CONDITIONS CONTAINED IN DIVISION 1 OF THE CONTRACT DOCUMENTS.

2. INCLUDE IN THE WORK OF THIS SECTION ALL CONCRETE INCORPORATED IN THE PROJECT. REFER ALSO TO PRECAST CONCRETE SPECIFICATION, PLAN NOTES, SLAB ON GRADE AND FOUNDATION NOTES, COLUMN, BEAM, WALL, AND SLAB SCHEDULES FOR ADDITIONAL CONCRETE REQUIREMENTS.

3. CONFORM TO CSA – A23 SERIES OF STANDARDS, (ACI 318, AND ACI REPORT 350 WHERE APPLICABLE) AND THE RSIC MANUAL OF STANDARD PRACTICE (LATEST EDITION) FOR DESIGN, MATERIALS, CONSTRUCTION, CURING, TESTING, TOLERANCES, AND FINISHING OF CONCRETE.

4. INSTALL, OR SUPPLY AND INSTALL, ANCHORAGE, FASTENINGS AND BLOCKING AS REQUIRED, FOR WORK OF OTHER SECTIONS.

5. MATERIALS SHOWN ON THE DRAWINGS OR IN THIS SPECIFICATION ARE TO ESTABLISH THE REQUIRED DEGREE OF QUALITY OR PERFORMANCE. SUBSTITUTION MAY BE PERMITTED UPON PROOF OF EQUIVALENCE. SUBMIT ALL PROPOSALS FOR SUBSTITUTION TO THE CONSULTANT IN WRITING IN ADVANCE OF SHOP DRAWINGS, EACH ITEM SHALL BE CLEARLY IDENTIFIED. DO NOT PROCEED WITH PROPOSAL UNLESS IT IS ACCEPTED IN WRITING BY THE CONSULTANT.

6. SUBMIT BAR LISTS AND PLACING DIAGRAMS TO THE CONSULTANT FOR REVIEW PRIOR TO FABRICATION OF REINFORCING STEEL. DRAW DIAGRAMS TO A SCALE OF NOT LESS THAN 1:50. SHOW ELEVATIONS OF ALL WALLS. ALL MARK NUMBERS ON THE BAR LISTS MUST BE SHOWN ON THE SCALED PLACING DIAGRAMS. SEE THE GENERAL NOTES SECTION FOR SHOP DRAWING REQUIREMENTS.

PRODUCTS

1. MATERIALS:
   1. CEMENT GENERAL USE TYPE GU PORTLAND CEMENT TO CSA A3001.
   2. WATER, FINE AGGREGATES, COARSE AGGREGATES: TO CSA-A23.1. MAXIMUM COARSE AGGREGATE, 20 mm DIAMETER UNLESS NOTED FOR FORMED CONCRETE. MAXIMUM COARSE AGGREGATE, 40 mm DIAMETER FOR LARGE AUGURED PIERS OR MASS CONCRETE.
   3. AIR-ENTRAINING ADMIXTURE: TO ASTM C260.
   4. CHEMICAL ADMIXTURES: TO ASTM C494 OR ASTM C1017.
   5. CURING-SEALING COMPOUND: WHEN WATER CURING IS NOT PRACTICAL AS APPROVED BY THE ENGINEER, USE A CLEAR LIQUID PRODUCT TO ASTM C-309, TYPE 1. USE SEALTIGHT VOCOMP20 BY W.R. MEADOWS OF CANADA LIMITED.
   6. RIGID PVC TYPE WATERSTOP: SPECIFICATION GRADE, STYLE 951 OR 955 BY GREENSTREAK. HYDROPHILLIC TYPE WATERSTOP: HYDROTITE CJK – BY MME MULTIURETHANES.
   7. REINFORCING STEEL: NEW, DEFORMED, BILLET-STEEL BARS TO CSA STANDARD G30.18, GRADE 400R. WHERE WELDING OF BARS IS REQUIRED USE GRADE 400W.
   8. WELDED WIRE FABRIC: NEW MATERIAL SUPPLIED IN FLAT SHEETS, NOT ROLLS, TO CSA G30.5. SIZE AS INDICATED ON PLANS.
   9. PLYWOOD FOR FORMWORK: COFI EXTERIOR GRADE, TO CSA STANDARD 0121. FOR EXPOSED CONCRETE USE NEW PLYWOOD.
   10. SAW-CUT JOINT FILLER: FOR AREAS SUBJECT TO HIGH WHEEL LOADS USE SEMI RIGID EPOXY, POURABLE CONSISTENCY, SUCH AS REZIWELD FLEX BY W.R. MEADOWS. FOR OTHER LOCATIONS USE SIKAFLEX 1C SL POLYURETHANE SEALANT.
   11. PREMOULDED JOINT FILLER: CERAMAR FLEXIBLE FOAM BY W.R. MEADOWS.
   12. NON-METALLIC FLOOR SURFACE HARDENER: USE A DRY SHAKE PRODUCT APPLIED IN TWO PASSES SUCH AS: TRAPROCK BY SIKA CANADA INC. TOTAL APPLICATION RATE OF 5-6 kg/ sq. m.
   13. LIQUID DENSIFYING SEALER USE LIQUI- HARD BY W.R. MEADOWS OF CANADA.
   14. ASPHALT IMPREGNATED ISOLATION JOINT MATERIAL MEETING ASTM D 994, FED. SPEC. HH-F-341 F, Type III, AASHTO M 33, AND FAA SPEC. ITEM P-610-2.7, BY W.R MEADOWS OR EQUAL.
   15. VOID FORMS: GEOSPAN COMPRESSIBLE FILL 50 KPa MAX COMPRESSIVE STRENGTH POLYSTYRENE FOAM BY PLASTI-FAB.
   16. RIGID FOUNDATION INSULATION: CLOSED CELL POLYSTYRENE FOAM, STYROFOAM SM, DOW CHEMICAL COMPANY, MINIMUM 30psi COMPRESIVE STRENGTH.

2. SUPPLY CONCRETE AS PER CSA A23.1-09
   ALL CONCRETE MIXES CLEARLY IDENTIFY AND CONFIRM THE UNDERSTANDING OF THE CONCRETE REQUIREMENTS IN WRITING PRIOR TO PRODUCTION FOR ALL MIXES. SUCH A SUBMISSION SHALL INCLUDE, AS A MINIMUM; THE LOCATION OF EACH MIX DESIGN TO BE USED IN THE STRUCTURE, THE CEMENT TYPE, ALL SUPPLEMENTARY MATERIALS, CLASS OF EXPOSURE, COMPRESSIVE STRENGTHS, AGGREGATE SIZE, AND CONCRETE DENSITY.

   USE READY MIXED CONCRETE TO GIVE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 25 MPa, (EXCEPT MINIMUMS AS NOTED BELOW). USE A WATER-REDUCING CHEMICAL ADMIXTURE FOR ALL CONCRETE. USE AN AIR ENTRAINING ADMIXTURE TO GIVE TOTAL AIR CONTENT CONFORMING TO TABLE 1 AND 2 AND 4 OF A23.1 09 TO MATCH REQUIRED CONCRETE CLASSIFICATIONS. WATER_CEMENT RATIO SHALL CONFORM TO TABLE 2 OF A23.1 09 UNLESS NOTED OTHERWISE. COORDINATE WITH THE GENERAL CONTRACTOR (AND STEEL FIBRE SUPPLIER AS APPLICABLE) WITH RESPECT TO WORKABILITY ISSUES, AND CONFIRM THE CRITERIA IN THE SUBMISSION (SLUMP, PUMP MIX, DESIGN CONCRETE TEMPERATURE, ETC.).

EXPOSURE CLASS	USE	STRENGTH	W/C RATIO	AIR	MAX AGGREGATE SIZE (mm)	CEMENT CONTENT	(kg/m³) SLUMP
–	LEAN MIX OR "UNSHRINKABLE FILL	= 0.4 TO 0.7 MPa	AS REQ'D	–	19	AS REQ'D	AS REQ'D
N	SKIM COATS	= 15 MPa	0.7	–	19	255	80± 25mm
F-1	GRADE BEAMS	= 25 MPa	0.52	5% to 8%	19	340	80± 25mm
N	STRUCTURAL SLABS	= 25 MPa	0.52	5% to 8%	19	340	80± 25mm
F-1	SLABS-ON-GRADE – WALKWAYS – EXTERIOR	= 32 MPa	0.40	5% to 8%	19	355	80± 25mm

CAST IN PLACE CONCRETE CONT'D.

EXECUTION

1. NOTIFY THE ENGINEER 5 WORKING DAYS IN ADVANCE OF PLACING CONCRETE TO PERMIT VIEWING OF REINFORCEMENT AND PLACING OF CONCRETE. ALSO COORDINATE SCHEDULES WITH THE INDEPENDENT INSPECTION AND TESTING COMPANY. DO NOT CLOSE FORMS UNTIL THE REINFORCEMENT HAS BEEN REVIEWED.

2. USE VIBRATORS FOR CONSOLIDATION OF CONCRETE. DO NOT PLACE CONCRETE FOR EXPOSED SLABS IN THE RAIN.

3. USE PLASTIC OR CONCRETE BAR SUPPORTS IN EXPOSED LOCATIONS AND PARKING AREAS. USE CONCRETE BAR SUPPORTS FOR STEEL ABOVE SOFT VOID FORM FILLER MATERIAL. IN OTHER LOCATIONS PROVIDE STEEL CHAIRS OR CONCRETE SPACERS TO MAINTAIN SPECIFIED COVER TO REINFORCING STEEL. UNLESS OTHERWISE NOTED, INTERIOR AREAS 25 mm COVER, EXTERIOR AREAS 40 mm COVER, UNFORMED SURFACES EXPOSED TO SOIL PROVIDE 75 mm COVER.

4. EXPOSED CONCRETE SHALL BE FREE FROM HONEYCOMBING, VOIDS, LOSS OF FINES, VISIBLE FLOW LINES AND COLD JOINTS, CHIPS AND SPALLS. EXPOSED CONCRETE SHALL BE RUBBED SMOOTH USING WATER AND CARBORUNDUM BRICK. PATCH DEFECTS AND TIE HOLES. REMOVE FINS. ALSO REFER TO ARCHITECTURAL SPECIFICATIONS.

5. PLACE 19 mm MINIMUM BEVELS OR CHAMFERS AT ALL EXPOSED CORNERS.

6. MAXIMUM DISTANCE BETWEEN CONSTRUCTION JOINTS ARE:

   1. WALLS AND FRAMED SLABS: 9m, OR 18m ALTERNATING WITH CONTROL JOINTS AT SAME SPACING.
   2. SLABS-ON-GRADE: 6m, OR 18m WITH 5 mm WIDE X ¼ OF SLAB DEPTH (SAW-CUT JOINTS) (TOOL JOINTS) AT 6m CENTRES. FOR SLABS LESS THAN OR EQUAL TO 125 mm THICK REDUCE CONTROL JOINT SPACING TO 4.5m ON CENTRE. ALSO SEE PLANS.

7. LEAVE CHASES AND POCKETS IN WALLS FOR SEATING OF SLABS AND BEAMS.

8. REINFORCE ALL SIDES OF OPENINGS IN CONCRETE WALLS. LENGTH OF BARS EQUAL TO OPENING DIMENSION PLUS 600 mm EACH SIDE. USE 2 – 15M FOR WALL THICKNESS UP TO 200 mm, 2 – 20M FOR WALLS OVER 200 UNLESS NOTED. REFER ALSO TO THE STANDARD OR TYPICAL DETAIL SHEETS.

9. UNLESS OTHERWISE SPECIFIED ON THE PLANS, PROVIDE TEMPERATURE REINFORCING FOR FRAMED ONE_WAY SLABS IN ACCORDANCE WITH THE TYPICAL OR STANDARD DETAIL SHEETS.

10. LAP ALL REINFORCING WITH CLASS 'B' SPLICES U/N. ALL STEEL MUST BE ADEQUATELY TIED AND ACCURATELY PLACED PRIOR TO THE COMMENCEMENT OF ANY CONCRETE POUR.

11. PROVIDE CONTINUOUS GALVANIZED VERTICAL DOVETAIL ANCHOR SLOTS AT 600 IN ALL CONCRETE SURFACES WITH BRICK OR STONE VENEER FINISHES AND AT ABUTTING MASONRY WALLS.

12. PROVIDE WATERSTOPS IN ALL CONSTRUCTION JOINTS BELOW GRADE (EXCEPT WHERE BACKFILLED BOTH SIDES) UNLESS NOTED OTHERWISE.

13. COORDINATE HOUSE KEEPING PADS, SUMP PITS, LIGHT POLE FOUNDATIONS AND CONDUIT ENCASEMENT WITH THE MECHANICAL, ELECTRICAL AND SITE PLAN DRAWINGS. COORDINATE SLEEVES THROUGH OR UNDER WALLS WITH THE DRAWINGS WHICH SHOW THE APPLICABLE UTILITIES AND PIPING.

14. ELECTRICAL CONDUIT AND PIPING TO BE CAST IN CONCRETE STRUCTURES ARE TO BE COORDINATED WITH THIS OFFICE. NO HORIZONTAL RUNNING CONDUIT IS ALLOWED WITHIN THE WALLS, UNLESS SPECIFIC LOCATIONS ARE APPROVED BY THE ENGINEER.

15. SURFACE FINISHING – PROVIDE FINAL FINISH IN ACCORDANCE WITH PROPOSED USE.

    REFER TO ARCHITECTURAL ROOM SCHEDULE:

    SKIM COATS, PITS: SCREEDED AND BULL FLOATED

    BASE SLAB FOR TERRAZZO, TILE OR BONDED TOPPING: SCREEDED, BULL FLOATED AND SCORED WITH WIRE BRUSH

    FLOORS WHICH RECEIVE RESILIENT FLOOR OR CARPET, FUTURE FLOORS: POWERED STEEL TROWEL

    INTERIOR EXPOSED SLABS: POWERED STEEL TROWEL WITH NON-SLIP SWIRLS

    EXTERIOR EXPOSED SLABS: WOOD FLOAT FINISH WITH BROOMING

    STAIRS: PROVIDE A SLIP RESISTANT STEEL TROWEL FIN

STRUCTURAL STEEL

GENERAL

1. CONFORM TO THE GENERAL REQUIREMENTS AND SPECIAL CONDITIONS CONTAINED IN (DIVISION 1) AND GENERAL NOTES. FOLLOW CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL, UNLESS PROJECT SPECIFICATIONS ARE MORE STRINGENT. THESE NOTES RELATE TO THE ITEMS DESIGNED BY NUNA BURNSIDE.
2. CONFORM TO CSA STANDARDS CSA_S16, CSA_S136, W47.1, W48.1, W48.1, W55.3, W59 AND CSA G40.20 LATEST EDITIONS.
3. MATERIALS SHOWN ON THE DRAWINGS OR IN THIS SPECIFICATION ARE TO ESTABLISH THE REQUIRED DEGREE OF QUALITY OR PERFORMANCE. SUBSTITUTION MAY BE PERMITTED UPON PROOF OF EQUIVALENCE. SUBMIT ALL PROPOSALS FOR SUBSTITUTION TO THE CONSULTANT IN WRITING IN ADVANCE OF SHOP DRAWINGS. EACH ITEM WILL BE CLEARLY IDENTIFIED. DO NOT PROCEED WITH PROPOSAL UNLESS IT IS ACCEPTED IN WRITING BY THE CONSULTANT.
4. TOLERANCES: FABRICATION AND ERECTION TOLERANCES SHALL MEET THE REQUIREMENTS OF CSA STANDARD S16.
5. DEFLECTION REQUIREMENTS: TOTAL DEFLECTION NOT TO EXCEED 1/180 OF THE SPAN, LIVE LOAD DEFLECTION TO 1/360 OF THE SPAN, EXCEPT WHERE SUPPORTING MASONRY INCREASE STIFFNESS TO 1/720 OF THE SPAN.
6. WORK SHALL BE CARRIED OUT BY A MEMBER OF THE CANADIAN INSTITUTE OF STEEL CONSTRUCTION. WELDING SHALL BE PERFORMED BY FIRMS FULLY APPROVED BY THE CANADIAN WELDING BUREAU UNDER THE REQUIREMENTS OF CSA STANDARD W47.1. SUBMIT VERIFICATION DOCUMENTATION BEFORE COMMENCING WORK.
7. DESIGN CONNECTIONS TO CONFORM TO CSA–S16 AND THE CISC HANDBOOK OF STEEL CONSTRUCTION, USING STANDARDIZED CONNECTIONS WHERE POSSIBLE. UNLESS A SPECIFIC FACTORED CONNECTION LOAD IS SHOWN ON THE PLANS, PROVIDE CONNECTION CAPACITIES AS FOLLOWS:

   FOR STANDARD BEAM SHEAR CONNECTIONS, DESIGN FOR A SERVICE CAPACITY IN kN EQUAL TO THE BEAM DEPTH IN MM MULTIPLIED BY .5.

   DESIGN ALL SPLICES AND CONNECTIONS OF TENSION OR COMPRESSION MEMBERS FOR THEIR FULL CAPACITY, UNLESS FACTORED CONNECTION LOADS ARE SHOWN.

   THE MINIMUM WELD SIZE SHALL BE A 5 mm FILLET WELD, AND WHERE INTERMITTENT, 40 mm LONG MINIMUM.

   ARRANGE AND PAY FOR NON–DESTRUCTIVE TESTING OF ALL UNSPECIFIED SPLICES IN COLUMNS, BEAMS AND JOIST COMPONENTS. ALL CONNECTIONS AND DETAILS SHALL BE DESIGNED BY A QUALIFIED REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN NUNAVUT, WHOSE STAMP AND SIGNATURE SHALL BE ON THE SHOP DRAWINGS. AN EXCEPTION IS FOR MISCELLANEOUS STEEL ITEMS WHERE CONNECTIONS ARE DETAILED ON THESE DRAWINGS.
8. DESIGN AND PROVIDE BEARING PLATES FOR A MAXIMUM PRESSURE OF 3.5 MPa ON ENGINEERED MASONRY AND 10 MPa ON CONCRETE, BASED ON FACTORED LOADS USING LIMIT STATES DESIGN.
9. SEE GENERAL NOTES SECTION FOR SHOP DRAWING SUBMISSION REQUIREMENTS IN ADDITION TO NOTES ABOVE.
10. VISIT THE SITE TO CONFIRM CONDITIONS AFFECTING THE WORK.

PRODUCTS

1. MATERIALS: STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWNG CSA STANDARDS CAN/CSA G40.21 GRADE 350W FOR ALL WIDE FLANGE & HSS SECTIONS, ASTM A500 FOR HSS, 300W FOR ALL OTHER MATERIALS. FOR EXISTING STEEL ON SITE THAT IS BEING MODIFIED OR CONNECTED TO NEW WORK, BASE CONNECTION DESIGNS ON EXISTING GRADES OF CSA G40.21 GRADE 300 W MATERIAL, UNLESS OTHERWISE NOTED.

STEEL JOISTS:	CAN/CSA G40.21 Grade 300W and CAN/CSA_S136.
COLD FORMED SHAPES:	CAN/CSA S136, minimum thickness 1.2mm.
HIGH STRENGTH BOLTS:	to ASTM A325.
ANCHOR RODS:	to CAN/CSA Standard G40.21 Grade 300W
TIE RODS:	to CAN/CSA Standard G40.21 Grade 300W.
PRIMER PAINT:	to CISC/CPMA specification 2_75.
ZINC_RICH SHOP PRIMER PAINT:	to CGSB 1_GP_181M.
HOT DIP GALVANIZING:	to CSA G164 minimum 610 g/m2 coating thickness.
STEEL GRATING:	STEEL BARS TO ASTM A1011/A1011M
	COMMERCIAL STEEL (TYPE 2) CROSS RODS ASTM A510.
NUTS:	STOVER GRADE C AUTOMATION LOCKNUTS WHERE LOCKNUTS SPECIFIED, OTHERWISE ASTM A325.

2. FABRICATION SHALL CONFORM TO CSA STANDARDS CSA–S16, W59 AND W55.3.
3. ALL STEEL TO BE CLEANED AND SHOP PRIMED UNLESS NOTED. OMIT PRIMER WHERE SURFACES ARE TO BE COVERED WITH A SPRAYED ON FIRE PROOFING PRODUCT, OR WHERE SURFACES ARE TO BE FIELD WELDED, OR ENCASED IN CONCRETE.
4. SHELF ANGLES, HANGERS AND LINTELS IN EXTERIOR WALLS AND EXPOSED EXTERIOR STEEL MEMBERS SHALL BE COMMERCIAL BLAST (MECHANICALLY) CLEANED TO SSPC–SP6. ALL 'MILL COATINGS' MUST BE REMOVED BY THE STEEL FABRICATOR. FOR EXTERIOR AND EXPOSED EXTERIOR STEEL THE FINISH IS TO BE HOT DIPPED GALVANIZED. FOR INTERIOR STEEL THE FINISH IS AS PER THE ARCHITECTURAL REQUIREMENTS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR SURFACE PREPARATION OF GALVANIZED MATERIALS PRIOR TO APPLICATION OF FINISHED PAINTING.

EXECUTION

1. STORE MATERIALS TO PREVENT DAMAGE AND DISTORTION.
2. CHECK SITE CONDITIONS PRIOR TO THE COMMENCEMENT OF STEEL ERECTION, TO ENSURE THAT SUPPORTING CONDITIONS ARE WITHIN SATISFACTORY TOLERANCES (BASE PLATE AND ANCHOR ROD POSITIONS). BRING ALL NON–CONFORMING CONDITIONS TO THE ATTENTION OF THE GENERAL CONTRACTOR FOR RECTIFICATION.
3. ERECTION SHALL BE CARRIED OUT BY FORCES OF THE STEEL FABRICATOR. PROVIDE ALL TEMPORARY BRACING TO KEEP THE STRUCTURE STABLE UNTIL THE ENTIRE STRUCTURE IS COMPLETE. PROTECT ALL EXISTING BUILDING COMPONENTS FROM DAMAGE. MAINTAIN SAFE WORKING PRACTICES.
4. WHERE MISCELLANEOUS STEEL ITEMS ARE INSTALLED BY OTHERS, SUCH AS BENCH BRACKETS, RAILINGS, STAIRS, PROVIDE ERECTION AND COORDINATION DRAWINGS TO OTHERS IN SUFFICIENT TIME TO ALLOW SETTING OF HARDWARE.
5. PROVIDE CONTINUOUS WELDING AT ARCHITECTURALLY EXPOSED JOINTS SUCH AS DOORJAMBS AND HEADS, AND GRIND SMOOTH. REFER ALSO TO ARCHITECTURAL REQUIREMENTS.
6. PROVIDE FRAMING FOR ALL OPENINGS IN METAL DECK GREATER THAN 450 MM SQUARE.
7. ANCHOR ROOF MEMBERS TO SUPPORTING WALL WITH MINIMUM TWO ANCHOR BOLTS 16 mm DIA. X 400 mm LONG + 50 mm END HOOKS. SET PLATE 25 mm BACK FROM EDGE OF WALL.
8. BASE PLATES SUPPORTED DIRECTLY ON GROUT ARE PREFERRED. LEVELING PLATES MAY BE USED, HOWEVER, LARGE LEVELING PLATES CAN ONLY BE USED WHERE THE FABRICATOR PROVIDES DETAILS TO ENSURE THAT THERE ARE NO VOIDS BENEATH THE PLATE, AND DETAILS HOW GAPS BETWEEN THE LEVELING PLATE AND BASE PLATE WILL BE ACCOUNTED FOR/REMEDIATED.
9. DO NOT MODIFY ANY MEMBERS IN THE FIELD UNLESS CHANGES ARE APPROVED BY THE ENGINEER. THE STEEL SUPPLIER IS TO ISSUE ENGINEERED SKETCHES AS REQUIRED.
10. WHERE STEEL GRATING IS REQUIRED, PROVIDE LOCAL BANDING IF BEARING BARS ARE NOTCHED OUT AROUND SUPPORTS AND WHERE BANDING IS CALLED FOR ON PLAN. FASTEN USING GRATEFAST LGF037 FASTENER (BY UNISTRUT), 3 PER SHEET AT EACH BEARING LOCATION, SCREW LENGTH TO SUIT GRATING DEPTH.
11. FIELD TOUCH UP ALL DAMAGED SURFACES AFTER ERECTION.
12. WHEN EVER ITEMS ARE TO BE HUNG FROM OWSJ OR TRUSSES, SECUREMENT SHALL BE FROM THE TOP CHORDS AT PANEL POINTS UNLESS OTHERWISE PERMITTED. ENSURE THAT HANGING LOADS HAVE BEEN ACCOUNTED FOR IN THE DESIGN ALLOWANCE. IF IN DOUBT, CONTACT THE ENGINEER FOR APPROVAL.

STRUCTURAL STEEL CONT'D.

GENERAL

13. INDEPENDENT INSPECTION AND TESTING: THE GENERAL CONTRACTOR IN CONSULTATION WITH THE CONSULTANTS WILL APPOINT AN INDEPENDENT INSPECTION AND TESTING AGENCY, CERTIFIED BY THE CANADIAN WELDING BUREAU TO CSA STANDARD W178_1973. THE COST OF INSPECTION SHALL BE COORDINATED BETWEEN THE GENERAL CONTRACTOR AND OWNER. WORK WILL BE INSPECTED IN THE SHOP AND WHEN ERECTED TO DETERMINE CONFORMANCE TO THE DRAWINGS AND SPECIFICATIONS. SEE ALSO THE GENERAL NOTES.
14. THE STEEL ERECTOR IS TO RECTIFY DEFICIENCIES NOTED IN ANY INSPECTION REPORTS AS SOON AS POSSIBLE AFTER NOTIFICATION, AND PRIOR TO THE COMMENCEMENT OF WORK OF OTHER TRADES, WHOSE WORK DEPENDS UPON THE INSTALLATION OF THE STRUCTURAL STEEL.
15. THE STEEL FABRICATOR IS TO PROVIDE THEIR OWN QUALITY CONTROL MEASURES AND NOT RELY SOLELY ON THE INDEPENDENT INSPECTION REPORTS PROVIDED BY THE OWNER AND GENERAL CONTRACTOR.

WOOD

GENERAL

1. CONFORM TO THE GENERAL REQUIREMENTS AND SPECIAL CONDITIONS CONTAINED IN DIVISION 1 AND RELATED SECTIONS OF THE CONTRACT SPECIFICATIONS
2. WHERE OTHERWISE NOT SHOWN ON THE PLANS, MINIMUM CONSTRUCTION IS TO BE IN ACCORDANCE WITH SECTION 9.23 OF THE NBCC FOR WOOD FRAME CONSTRUCTION.

PRODUCTS

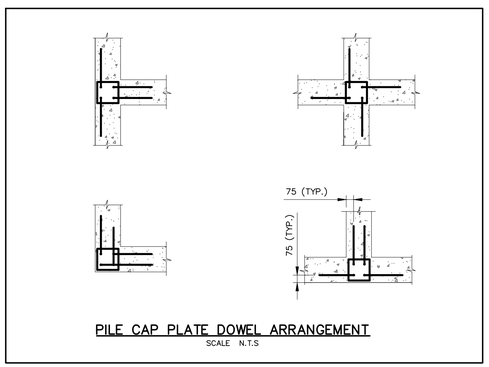
1. ALL LUMBER TO BE SPF No. 1/2 UNLESS OTHERWISE NOTED
2. LOAD BEARING COLUMNS OF 89X89 OR LARGER DIMENSION MUST BE SPF No. 1 MATERIAL.
3. ALL FRAMING LUMBER SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD GRADING RULES FOR CANADIAN LUMBER OF NATIONAL LUMBER GRADES AUTHORITY (NLGA)
4. PRE–ENGINEERED LUMBER INCLUDING WOOD I JOIST SYSTEM TO BE SUBMITTED FOR REVIEW PRIOR TO DELIVERY; ENSURE ALL DESIGNS ARE SEALED BY AN ENGINEER LICENSED IN NUNAVUT; MATERIAL TO BE WEYERHOUSE OR EQUIVALENT.

EXECUTION

1. ENGINEER TO UNDERTAKE A FRAMING REVIEW PRIOR TO ENCLOSING OF WALLS; NOTIFY ENGINEER AT START OF CONSTRUCTION AND SCHEDULE REVIEW APPROPRIATELY.
2. PROVIDE NUMBER OF PLIES AS INDICATED ON DRAWINGS.
3. PLIES OF BUILT UP BEAMS AND COLUMNS SHALL BE SECURED TOGETHER AS PER THE REQUIREMENTS OF 9.23 OF THE NBCC.
4. ALL WOOD EXPOSED TO SOIL, CONCRETE OR NOTED ON THE DRAWINGS AS 'PT' IS TO BE PRESSURE TREATED. CUT ENDS TO HAVE APPROVED TREATMENT PAINT APPLIED.
5. ENSURE FASTENERS AND METAL CONNECTORS IN CONTACT WITH TREATED WOOD PRODUCTS ARE PROTECTED SUFICIENTLY TO RESIST THE CORROSIVE PROPERTIES OF THE PRESERVATIVE MATERIALS BEING USED. USE HOT DIP GALVANIZED (MINIMUM ZINC COATING OF 600 g/M2) OR STAINLESS STEEL (TYPES 304 OR 316) FASTENERS AND CONNECTORS IN THESE APPLICATIONS.
6. ALL PRE–ENGINEERED WOOD ROOF TRUSSES MUST BE DESIGNED FOR THE LOADS NOTED AS A MINIMUM. PROVIDE BRIDGING AND BRACING AS PER FINAL REVIEWED SHOP DRAWINGS.
7. PROVIDE UPLIFT CLIPS OR APPROVED ANCHORAGE DEVICES AT THE SUPPORTING WALLS OF ALL TRUSSES, JOISTS, RAFTERS, ETC. THAT HAVE UPLIFT REACTIONS.
8. FRAMED WALLS SHALL BE ANCHORED TO THE FOUNDATION WITH A MINIMUM OF 12.7MM ANCHORS AT 1200MM C/C UNLESS OTHERWISE NOTED.

PILES

1. REFER TO DRAWINGS, FOUNDATION AND STRUCTURAL SLAB NOTES AND APPENDICED GEOTECHNICAL REPORT FOR RECOMMENDATIONS ON PILE INSTALLATION.
2. MATERIAL FOR PILES TO BE NEW HSS SHAPES CONFORMING TO CAN/CSA – G400.21 GRADE 350 W (50ksi) MATERIAL.
3. PILE CAP STEEL PLATES TO BE IN ACCORDANCE WITH CAN/CSA – G40.21 GRADE 300 W (43ksi) MATERIAL



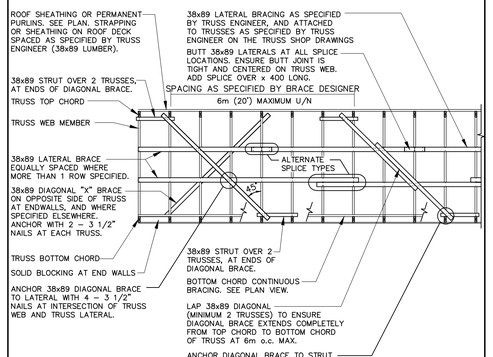
PILE CAP PLATE DOWEL ARRANGEMENT
SCALE N.T.S

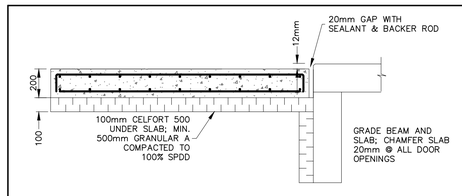
06 17 .
2012/06/04 2 of 3

BRACING OF SHOP FABRICATED WOOD TRUSSES

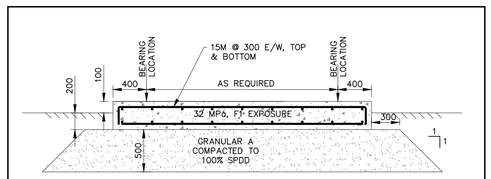
3. DIAGONAL WEB BRACING:

- SPACE 6m o.c. ACROSS BUILDING WIDTH, UNLESS CLOSER SPACING SHOWN ON TRUSS SHOP DWGS.
- BRACING SHOWN BASED ON CUMULATIVE FORCE OF 1% OF COMPRESSION LOAD IN WEB MEMBERS. VERIFY WITH SHOP DRAWINGS.

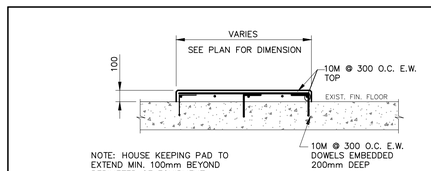




EXTERIOR APPROACH PAD (TYPICAL)
SCALE N.T.S



FUEL TANK STORAGE PAD
SCALE N.T.S



NOTE: HOUSE KEEPING PAD TO EXTEND MIN. 100mm BEYOND PERIMETER OF EQUIPMENT.

HOUSEKEEPING PAD DETAIL
SCALE N.T.S

06 17 .
2012/06/04 1 of 3

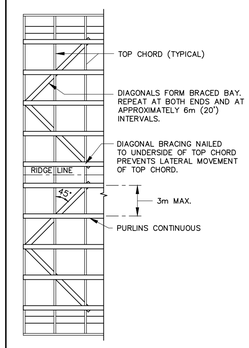
BRACING OF SHOP FABRICATED WOOD TRUSSES

NOTE:

- FOLLOW THESE STANDARD BRACING DETAILS IN COORDINATION WITH CONTRACT DOCUMENTS, SPECIFICATIONS AND SPECIFIC BRACING REQUIREMENTS AS REQUIRED ON TRUSS SHOP DRAWINGS.
- BRACING IS REQUIRED ALONG 3 PLANES, TOP CHORD, WEB MEMBERS AND BOTTOM CHORD.
- BRACING MEMBERS TO BE 38 x 89 No.1/No.2 GRADE SPF S–DRY OR KILN DRY, U/N.
- BRACING FASTENED WITH 2–90mm (3 1/2") STD. SPIRAL ARDOX NAILS (10d) PER CONNECTION POINT U/N.
- BRACING REQUIREMENTS APPLY REGARDLESS OF TRUSS SHAPE.
- ERECTION BRACING – SEE FABRICATOR'S DRAWINGS AND GUIDELINES.
- PROVIDE DIAGONAL BRACING AT ALL DISCONTINUITIES IN LATERAL BRACING SUCH AS WHERE TRUSS TYPES CHANGE.

1. TOP CHORD BRACING:

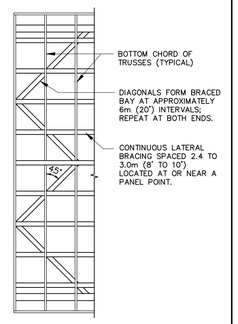
- FOR PLYWOOD SHEATHED TRUSSES, APPLY SHEATHING DURING TRUSS ERECTION OR APPLY 38 x 89 MIN PURLINS AT EACH PANEL POINT. FOR LARGE TRUSSES, MAXIMUM 3m ON CENTRE: APPLY PURLINS TO U/S TOP CHORDS IF SHEATHING INSTALLED LATER.



PLAN VIEW

2. BOTTOM CHORD BRACING:

- ALIGN BRACING LINE WITH POINT AT WHICH VERTICAL BRACING HITS BOTTOM CHORD WHERE POSSIBLE.



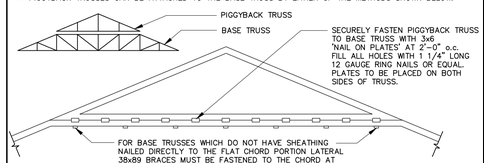
PLAN VIEW

06 17 .
2012/06/04 3 of 3

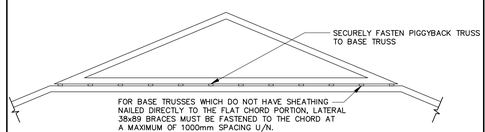
BRACING OF SHOP FABRICATED WOOD TRUSSES

4. OPTIONAL PIGGYBACK ATTACHMENT DETAILS:

- PIGGYBACK TRUSSES CAN BE ATTACHED TO THE BASE TRUSS BY EITHER OF THE METHODS SHOWN BELOW.



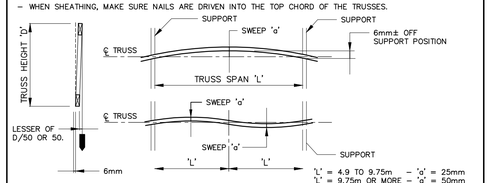
PIGGYBACK TRUSS DETAIL 1



PIGGYBACK TRUSS DETAIL 2

5. ERECTION TOLERANCE:

- WHEN SHEATHING, MAKE SURE NAILS ARE DRIVEN INTO THE TOP CHORD OF THE TRUSSES.



TRUSS PLUMBNESS TRUSS SWEEP

	Issue / Revision	Date
1	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
2	ISSUED FOR 99 SUBMISSION	JANUARY 2013
3	ISSUED FOR TENDER	FEBRUARY 2013
4	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
5	AS–BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

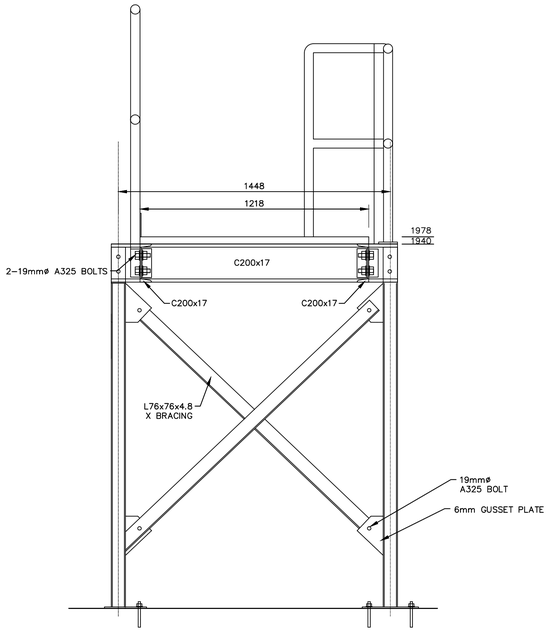
ORIGINAL STAMPED BY
C. W. JONES
04/22/13

Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

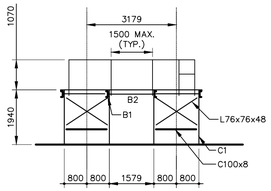
Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
STRUCTURAL GENERAL REQUIREMENTS CONT'D. AND TYPICAL DETAILS

Drawn By	Checked By	Drawing No.
W. WHITEDUCK	C. JONES	S7
Scale: NTS	Project No.: 300031281	



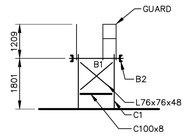
4 / S8 SECTION AT CATWALK
SCALE 1:15



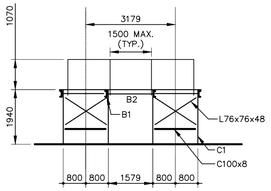
1 / S8 CATWALK FRAMING SECTION (SURGE TANK)
SCALE 1:100

CATWALK MEMBER SIZES

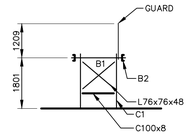
B1	C200 x 21
B2	C200 x 21
C1	76 x 76 x 6.4 HSS



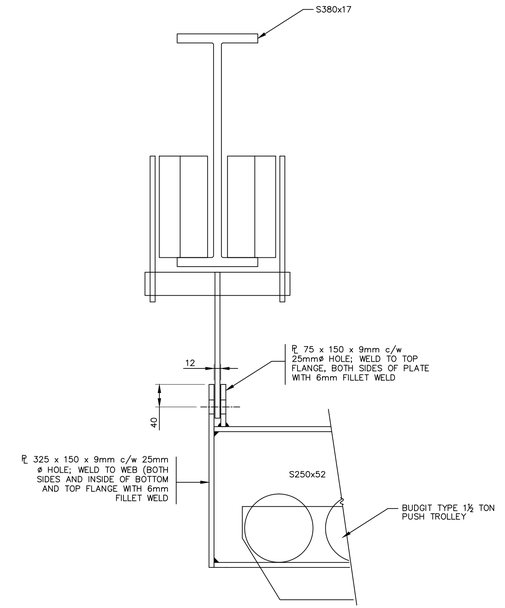
2 / S8 CATWALK FRAMING SECTION (SURGE TANK)
SCALE 1:100



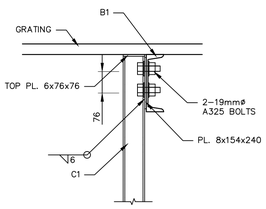
1B / S8 CATWALK FRAMING SECTION
SCALE 1:100



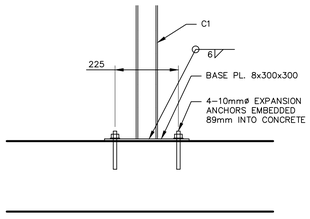
2B / S8 CATWALK FRAMING SECTION
SCALE 1:100



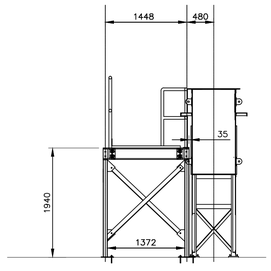
6 / S8 HOIST RAIL CONNECTION
SCALE 1:5



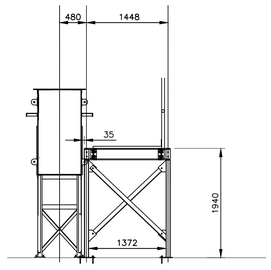
5 / S8 SECTION
SCALE 1:10



6 / S8 TYP. COLUMN CONNECTION
SCALE 1:10



3 / S8 SECTION AT CHANNEL CATWALK (SURGE TANK)
SCALE 1:50



3B / S8 SECTION AT CHANNEL CATWALK
SCALE 1:50

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS–BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

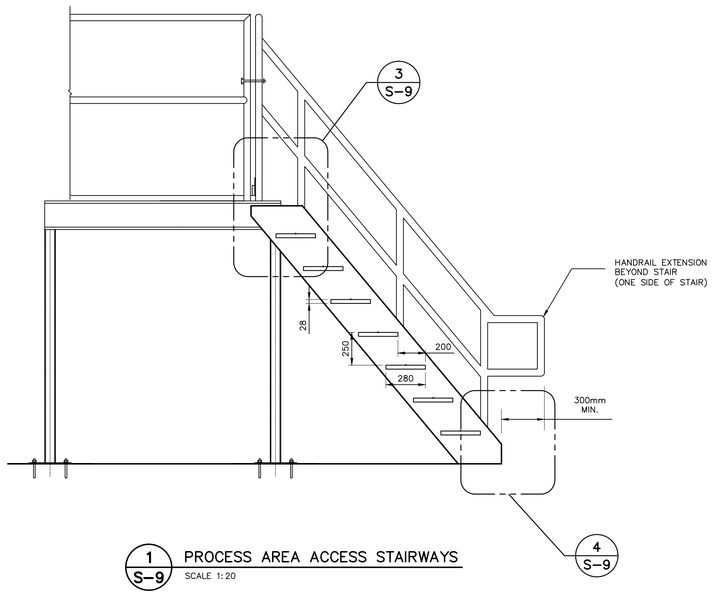
Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

RANKIN INLET
SEWAGE TREATMENT PLANT

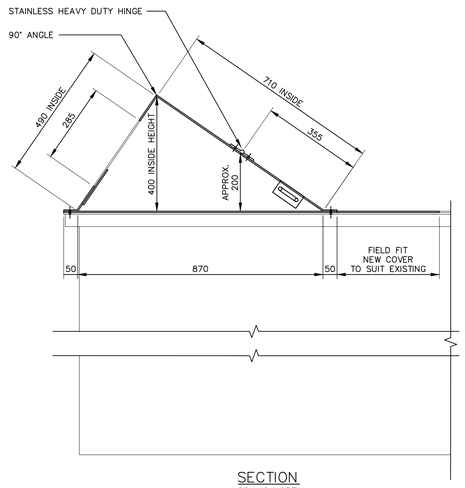
Drawing Title
CATWALK
LOCATION AND DETAILS

Drawn By	Checked By	Drawing No.
W. WHITEDUCK	C. JONES	S8
Scale: NTS	Project No.: 300031281	

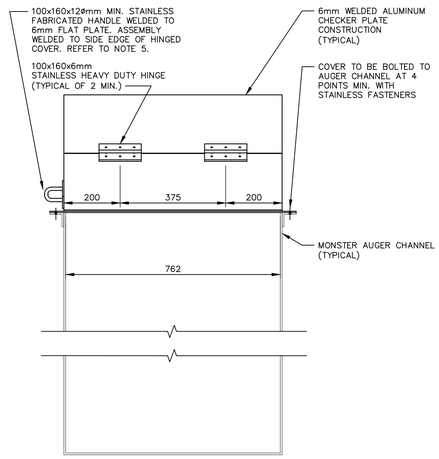
X:\Land Desktop\300031281 Rankin Inlet -Phase 2\As-built Drawings\cont\S-8.dwg
Aug 07, 2015 - 2:03pm



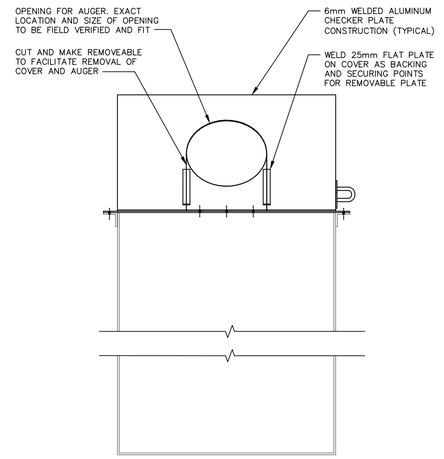
1 S-9 PROCESS AREA ACCESS STAIRWAYS
SCALE 1:20



SECTION
LOOKING NORTH



ELEVATION
LOOKING WEST

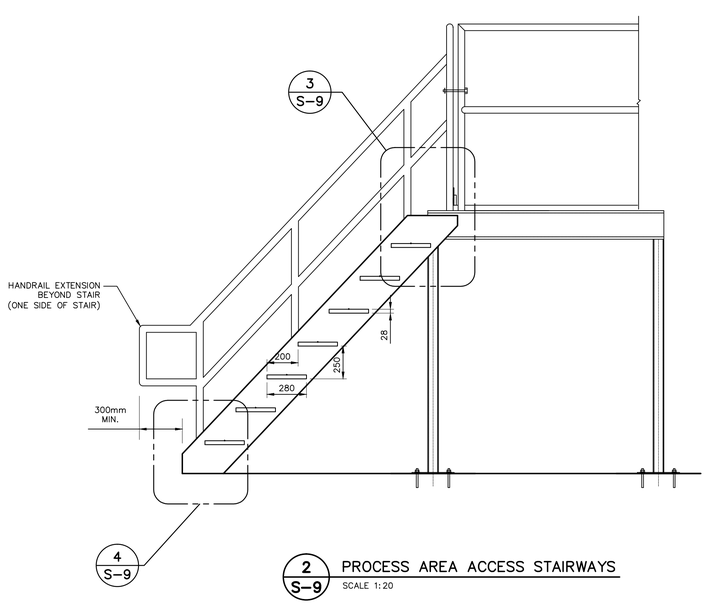


ELEVATION
LOOKING EAST

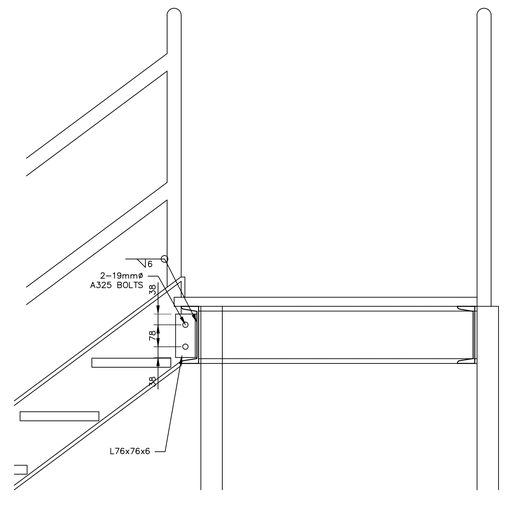
NOTES:

1. ALL DIMENSION TO BE FIELD VERIFIED PRIOR TO FABRICATION.
2. GRIND ALL RAW EDGES SMOOTH PRIOR TO INSTALLATION.
3. COVER AND REMOVABLE PLATE SHALL NOT IMPEDE THE OPERATION OR REMOVAL OF THE AUGER FROM THE CHANNEL.
4. SUBMIT SCALED AND DIMENSIONED SHOP DRAWINGS FOR APPROVAL PRIOR TO EQUIPMENT PROCUREMENT AND INSTALLATION.
5. HINGED COVER HANDLE TO BE MOUNTED ON SIDE WHERE ACCESS PLATFORM IS (TYPICAL). HANDLE LOCATION SHOWN ABOVE IS APPROPRIATE FOR EXISTING AUGER CHANNEL COVER. COVER ASSEMBLE FOR NEW AUGER CHANNEL WILL BE LOCATED ON THE OTHER SIDE.
6. SLOTS MUST BE FIELD LOCATED AND CUT TO ACCOMMODATE ENTRY OF ULTRASONIC SENSOR CABLE AND SPRAY WASH ASSEMBLY INTO THE AUGER CHANNELS. SUBMIT DIMENSIONED SHOP DRAWING OF FIELD DETERMINED LOCATIONS TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

5 S-9 AUGER TANK COVER
SCALE 1:10

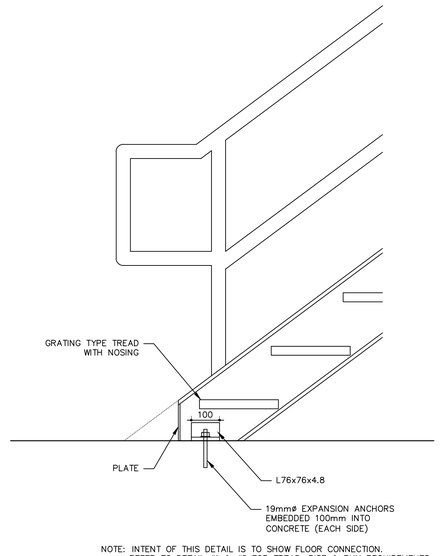


2 S-9 PROCESS AREA ACCESS STAIRWAYS
SCALE 1:20



NOTE: INTENT OF THIS DETAIL IS TO SHOW CATWALK CONNECTION.
REFER TO DETAIL #1 & #2 FOR TREAD, RISE & RUN REQUIREMENTS

3 S-9 TYPICAL SECTION AT TOP OF STAIRS
SCALE 1:10



NOTE: INTENT OF THIS DETAIL IS TO SHOW FLOOR CONNECTION.
REFER TO DETAIL #1 & #2 FOR TREAD, RISE & RUN REQUIREMENTS

4 S-9 TYPICAL SECTION AT BASE OF STAIRS
SCALE 1:10

	Issue / Revision	Date
1	ISSUED FOR TENDER	FEBRUARY 2013
2	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
3	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

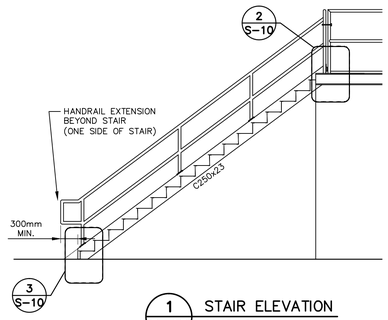
Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

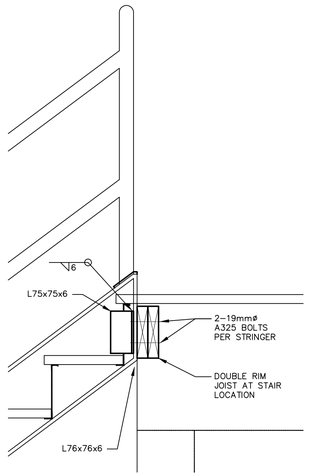
Drawing Title
STRUCTURAL STAIR DETAILS AND AUGER CHANNEL COVER DETAILS

Drawn By	Checked By	Drawing No.
C. GERUS	M. STREIFLER	S-9
Scale: AS NOTED	Project No.: 300031281	

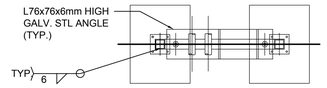
X:\Land Desktop\300031281 Rankin Inlet -Phase 2\As-built Drawings\cont\S-9.dwg
Aug 07, 2015 - 2:00pm



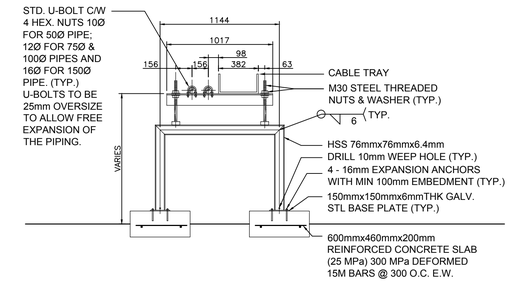
1 S-10 STAIR ELEVATION
SCALE 1:50



2 S-10 SECTION AT TOP OF STAIRS
SCALE 1:10

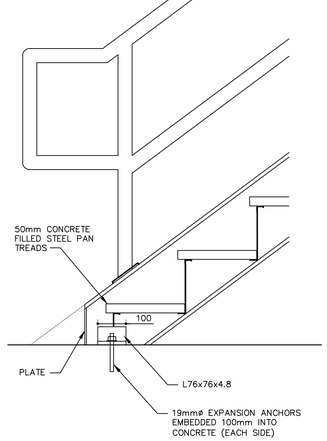


PLAN

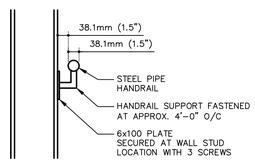


ELEVATION

TYPICAL PIPE SUPPORT DETAIL
NOT TO SCALE



3 S-10 SECTION AT BASE OF STAIRS
SCALE 1:10



4 S-10 WALL MOUNTED HANDRAIL DETAIL
SCALE 1:10

NOTE:

1. SEE SECTION 05-50-00-2.6 OF THE NATIONAL BUILDING CODE FOR FABRICATION OF STEEL STAIRS AND RAILINGS
2. SEE SPECIFICATION SECTION 05-50-10 STEEL TANKS, ELEVATED PLATFORMS AND STAIRS CLAUS 1.6 AND 1.7 FIR DESIGN REQUIREMENTS

	Issue / Revision	Date
1	ISSUED FOR TENDER	FEBRUARY 2013
2	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
3	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 fax (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

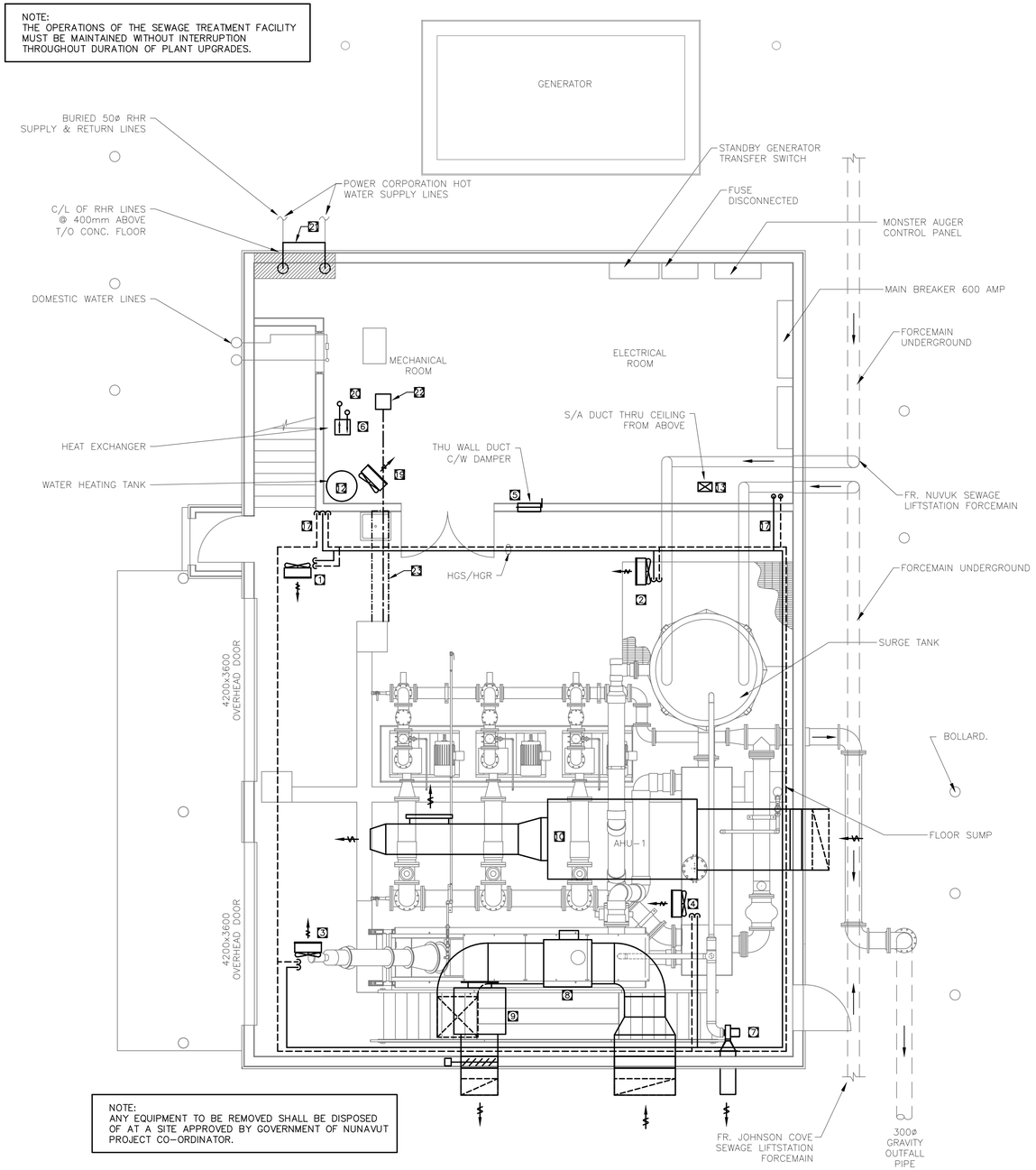
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
STRUCTURAL STAIR AND HANDRAIL DETAILS

Drawn By	Checked By	Drawing No.
C. GERUS	M. STREIFLER	S-10
Scale: AS NOTED	Project No.: 300031281	

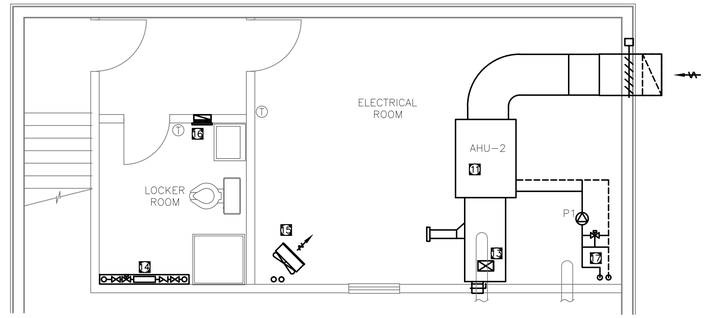
X:\Land Desktop\300031281 Rankin Inlet -Phase 2\As-built Drawings\contr\S-10.dwg
Aug 07, 2015 - 2:01pm

NOTE:
THE OPERATIONS OF THE SEWAGE TREATMENT FACILITY MUST BE MAINTAINED WITHOUT INTERRUPTION THROUGHOUT DURATION OF PLANT UPGRADES.



NOTE:
ANY EQUIPMENT TO BE REMOVED SHALL BE DISPOSED OF AT A SITE APPROVED BY GOVERNMENT OF NUNAVUT PROJECT CO-ORDINATOR.

DEMO – EXISTING MAIN FLOOR PLAN
1:50



DEMO – SECOND FLOOR LEVEL
1:50

EXIST. SEWAGE PLANT DECOMMISSIONING NOTES

1. REMOVE & RELOCATE OF UNIT HEATER. TO BE RE-USED IN NEW TRUCK BAY.
2. REMOVE & RELOCATE OF UNIT HEATER. TO BE RE-USED IN NEW TRUCK BAY.
3. REMOVE & RELOCATE OF UNIT HEATER. TO BE RE-USED IN NEW TRUCK BAY.
4. REMOVE & RELOCATE OF UNIT HEATER. TO BE RE-USED IN NEW TRUCK BAY.
5. REMOVE THRU WALL DUCT AND SEAL OPENING TO MATCH EXISTING.
6. EXISTING PLATE HEAT EXCHANGER TO BE RELOCATED
7. REMOVE & DISPOSE OF EXHAUST FAN, REPLACE WITH EXPLOSION PROOF MODEL.
8. REMOVE & DISPOSE OF EXHAUST FAN C/W ALL ASSOCIATED HARDWARE, WALL PENETRATIONS TO BE PATCHED TO MATCH EXISTING.
9. REMOVE AND DISPOSE OF EXHAUST FAN, WALL PENETRATIONS TO BE PATCHED TO MATCH EXISTING.
10. REMOVE AND DISPOSE OF AHU-1
11. REMOVE AND DISPOSE OF AHU-2
12. EXISTING HOT WATER STORAGE TANK TO BE RELOCATED
13. EXISTING DUCT WORK TO BE REMOVED, WALL/FLOOR PENETRATIONS TO BE PATCHED TO MATCH EXISTING.
14. EXISTING FIN TUBE RADIANT HEATER TO REMAIN.
15. EXISTING RADIANT HEATER TO REMAIN.
16. EXISTING EXHAUST FAN TO REMAIN.
17. REMOVE AND DISPOSE OF ALL EXISTING HYDRONIC HEATING PIPE WORK LOCATED IN PROCESS ROOM.
18. **DELETED**
19. EXISTING UNIT HEATER TO BE RELOCATED
20. REMOVE AND DISPOSE OF ALL EXISTING HYDRONIC HEATING PIPE WORK LOCATED IN MECHANICAL ROOM.
21. CUT BACK AND LOOP PIPING, WITH FLANGED FITTINGS, AS CLOSE TO GRADE AS REASONABLE, EXISTING HOT WATER LINES FROM POWER CORPORATION. (TYP. OF 2)
22. REMOVE EXISTING GRATED FLOOR DRAIN COVER. DRAIN TO BE PLUGGED AND PATCHED WITH CONCRETE TO MATCH EXISTING FLOOR SURFACE. FLOOR DRAIN PIPE TO BE ABANDONED.
23. SAW-CUT EXISTING CONCRETE FLOOR SECTION TO SUIT NEW PLUMBING MODIFICATIONS REQUIRED FOR NEW FLOOR DRAIN, CLEANOUT & RELOCATED SINK. (FLOOR TO BE PATCHED TO MATCH EXISTING UPON COMPLETION)

1:50 0 1 3m

	Issue / Revision	Date
1	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
2	ISSUED FOR 99% SUBMISSION	JANUARY 2012
3	ISSUED FOR TENDER	FEBRUARY 2013
4	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
5	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

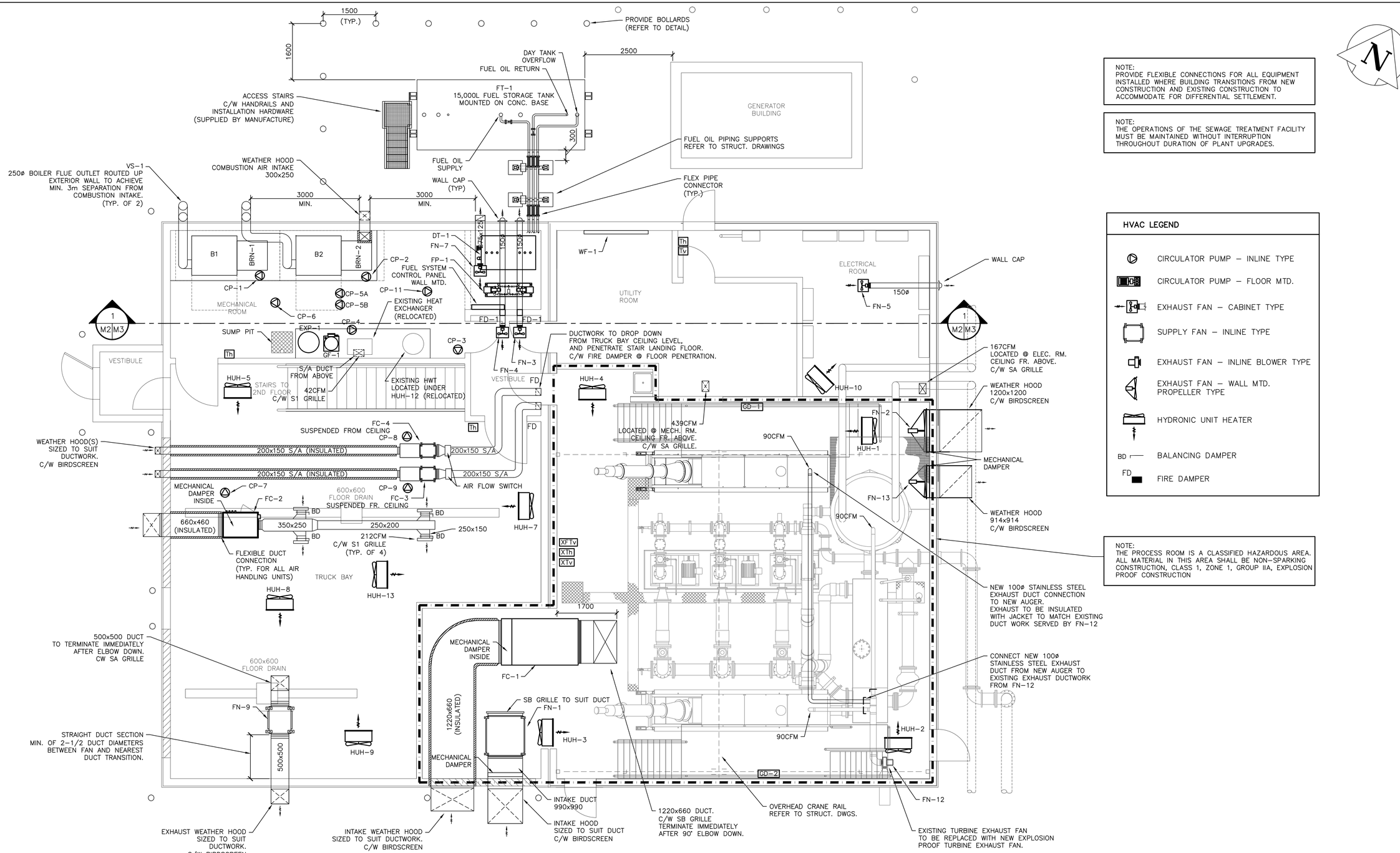
ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 fax (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
DEMOLITION – EXISTING MECHANICAL EQUIPMENT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-1
Scale 1:50	Project No. 300031281	



NOTE:
PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT INSTALLED WHERE BUILDING TRANSITIONS FROM NEW CONSTRUCTION AND EXISTING CONSTRUCTION TO ACCOMMODATE FOR DIFFERENTIAL SETTLEMENT.

NOTE:
THE OPERATIONS OF THE SEWAGE TREATMENT FACILITY MUST BE MAINTAINED WITHOUT INTERRUPTION THROUGHOUT DURATION OF PLANT UPGRADES.

HVAC LEGEND

- CIRCULATOR PUMP – INLINE TYPE
- CIRCULATOR PUMP – FLOOR MTD.
- EXHAUST FAN – CABINET TYPE
- SUPPLY FAN – INLINE TYPE
- EXHAUST FAN – INLINE BLOWER TYPE
- EXHAUST FAN – WALL MTD. PROPELLER TYPE
- HYDRONIC UNIT HEATER
- BD — BALANCING DAMPER
- FD — FIRE DAMPER

MECHANICAL – GROUND FLOOR PLAN
1:50

1:50 0 1 3m

1. This drawing is the exclusive property of Nuna Burnside and the reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
4. Do not scale the drawings.

	Issue / Revision	Date
1	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
2	ISSUED FOR 99% SUBMISSION	JANUARY 2013
3	ISSUED FOR TENDER	FEBRUARY 2013
4	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
5	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

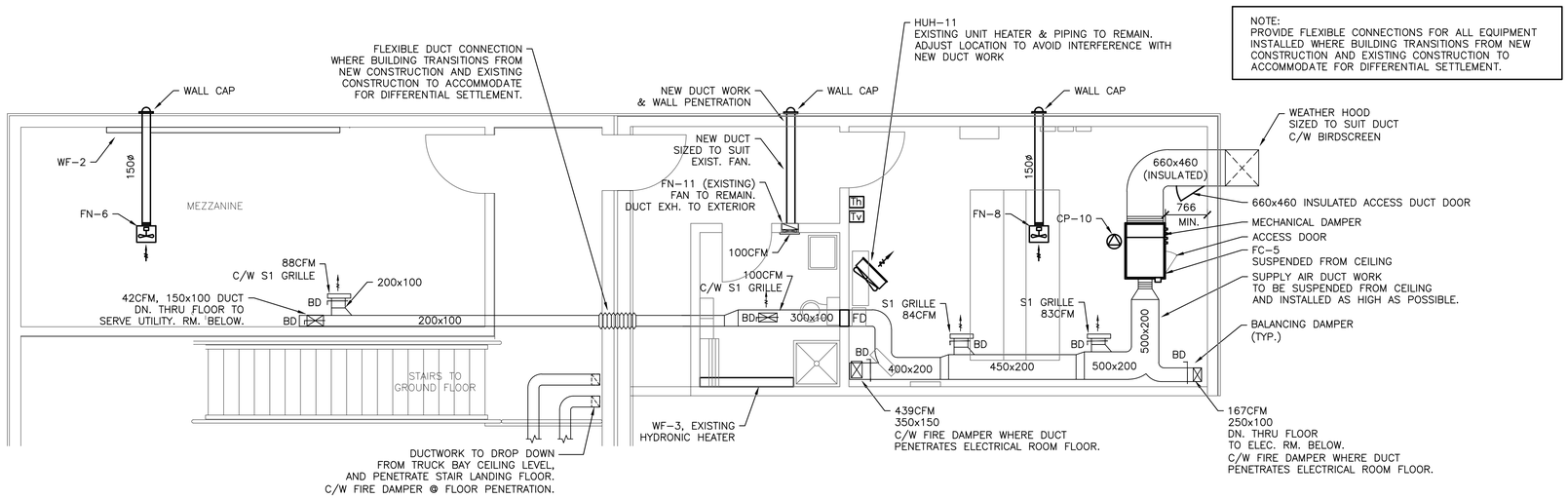
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

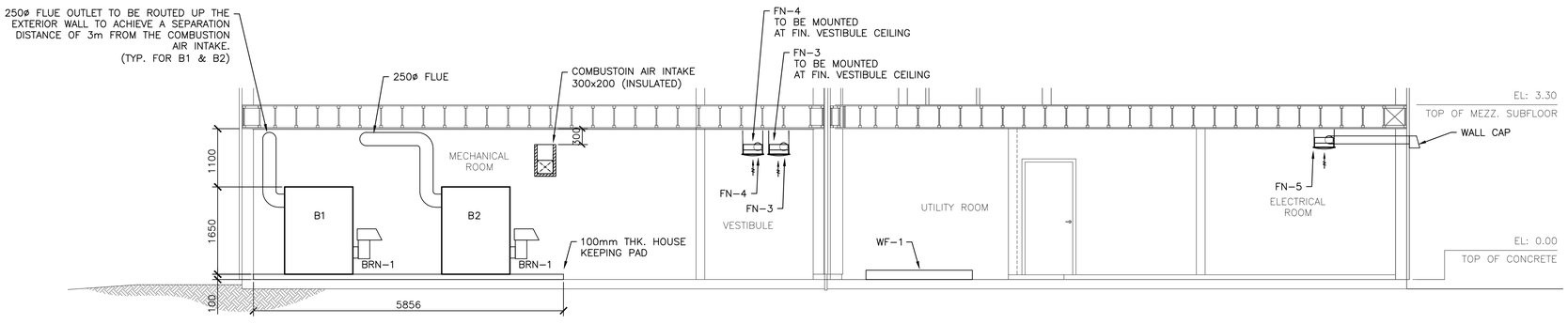
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
GROUND FLOOR
MECHANICAL HVAC LAYOUT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-2
Scale 1:50	Project No. 300031281	



MECHANICAL – MEZZANINE FLOOR PLAN
1:50



1 / M2|M3 SECTION
1:50

1:50 0 1 3m

	Issue / Revision	Date
1	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
2	ISSUED FOR 99% SUBMISSION	JANUARY 2013
3	ISSUED FOR TENDER	FEBRUARY 2013
4	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
5	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
SECOND FLOOR
MECHANICAL HVAC LAYOUT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-3
Scale: 1:50	Project No.: 300031281	

HEATING & VENTILATING EQUIPMENT LIST

ITEM No.	DESCRIPTION	MF'R/MODEL
B-1, B-2	OIL FIRED HOT WATER BOILERS, I=B=R NET RATING OF 1,229 MBH. C/W INSULATED STEEL JACKET, LOW WATER CUTOFF, ASME 30 PSI RELIEF VALVE, DUAL HIGH LIMIT AND OPERATING CONTROL, COMBINED TEMPERATURE/PRESSURE/ALTITUDE GUAGE, BUILT IN AIR ELIMINATOR, WELL FOR TEMPERATURE SENSOR AND AIR SEPARATOR.	WEIL-MCLAIN / 88 SERIES 2 MODEL 688
BRN-1, BRN-2	FORCED DRAFT OIL BURNERS FOR WEIL MCLAIN 88 SER. 2 MODEL 688 BOILERS. SET UP FOR ON - OFF OPERATION. C/W OIL PUMPS, BURNER CONTROLS AND ALARM PANEL THAT ACCEPTS CONTROL SIGNAL FROM BOILER CONTROL SYSTEM. ELECTRICS: 208 V / 3 PH / 60 HZ; 0.75 HP	RIELLO / RL 50/2
VS-1, VS-2	ENGINEERED MODULAR VENT STACK FOR BOILERS. ULC LISTED. C/W 0.64MM THICK ALUMINIZED STEEL OUTER SHELL, 0.95MM THICK TYPE 304 STAINLESS STEEL INNER LINER, AND ALL REQUIRED ACCESSORIES TO COMPLETE VENTING SYSTEM.	VAN PACKER / DW PLUS SYSTEM.
BC-1	BOILER CONTROLLER CONTROLLER TO BE CAPABLE OF CONTROLLING 2 BOILERS, DHW SYSTEM CIRCULATOR AS WELL AS 2 MAIN CIRCULATORS. C/W THE FOLLOWING FEATURES: OUTDOOR TEMPERATURE RESET, OUTDOOR TEMPERATURE SENSOR, ON-OFF BOILER CONTROL, PRIMARY AND SECONDARY PUMP CONTROL, DHW PUMP OPERATION, ADJUSTABLE WARM WEATHER SHUTDOWN, PUMP EXERCISING ROUTINE, BOILER EQUAL RUN TIME ROTATION, EQUAL RUN TIME ROTATION FOR TWO REDUNDANT SECONDARY CIRCULATORS, FLOW OR COMBUSTION AIR PROOF.	TEKMAR / A 274
BC-2	HYDRONIC MIXING CONTROLLER. CONTROLLER TO ACCEPT TEMPERATURE INPUT FROM 10 K OHM THERMISTOR SENSOR. CONTROLLER TO OUTPUT VFD CONTROL OF CIRCULATORS UP TO 1/6 HP.	TEKMAR / A 361
CP-1, CP-2	POWER: 3PH X 208-230V	GRUNDFOS / UPS-10040F
CP-3 **EXISTING**	EXISTING POTABLE HOT WATER CIRCULATOR	**EXISTING B & G / SSF-22 SERIES**
CP-4 **EXISITNG**	EXISTING CIRCULATOR FOR 60% PROPYLENE GLYCOL SOLUTION TO HEAT EXCHANGER.	**EXISTING**
CP-5A CP-5B	POWER: 1PH X 230V	GRUNDFOS / UPS-50-160F
CP-6	POWER: 1PH X 115V	GRUNDFOS / UPS-43-100F
CP-7	POWER: 1PH X 115V	GRUNDFOS / UPS-15-58FC
CP-8, CP-9	POWER: 1PH X 115V	GRUNDFOS / UPS-15-58FC
CP-10	POWER: 1PH X 115V	GRUNDFOS / UPS-43-100F
CP-11	POWER: 1PH X 115V	GRUNDFOS / UPS-15-58FC
HUH-1, 2, 3, 4	EXPLOSION PROOF HYDRONIC UNIT HEATERS, HORIZONTAL TYPE, H5 SIZE. RATED CAPACITY: 57.3 MBH OUTPUT EWT: 180°F. AIRFLOW: 585 L/S (1240 CFM) PER UNIT. FLOW: 14.8 L/M (3.9 USGPM) OF 60% PROPYLENE GLYCOL SOLUTION. HEAD: 0.1 M (0.3 FT.) H2O ELECTRICS: 115V / 1PH / 60 HZ; AMPS = 3.0; 1/6 HP. C/W NON-SPARKING CONSTRUCTION, EXPLOSION PROOF MOTORS.	EXPLOSION PROOF ENG AIR / H5 SERIES
HUH-5, 6, 7, 8	EXISTING HYDRONIC UNIT HEATERS, HORIZONTAL TYPE, H4 SIZE RELOCATED FROM PROCESS ROOM. RATED CAPACITY: 56.8 MBH OUTPUT AIRFLOW: 472 L/S (1000 CFM) EWT: 180°F. WATER FLOW: 32.6 L/M (8.6 USGPM) HEAD: 0.2M (0.7 FT.) H2O ELECTRICS: 115V / 1PH / 60 HZ; AMPS = 3.0; 1/12 HP.	EXISTING UNITS, RELOCATED FROM PROCESS ROOM.
HUH-9 & 13	HYDRONIC UNIT HEATERS, HORIZONTAL TYPE, H5 SIZE, STANDARD DIFFUSERS. RATED CAPACITY: 57.3 MBH OUTPUT AIRFLOW:585 L/S (1240 CFM) EWT: 180°F. WATER FLOW: 14.8 L/M (3.9 USGPM) HEAD: 0.1M (0.3 FT.) H2O ELECTRICS: 115V / 1PH / 60 HZ; AMPS = 3.0; 1/6 HP.	ENG AIR / H5 SERIES
HUH-10, 11, 12	EXISTING HYDRONIC UNIT HEATERS, HORIZONTAL TYPE, RELOCATED AS NOTED ON DRAWINGS.	EXISTING UNITS, RELOCATED AS NOTED ON DRAWINGS.
FN-1 (PROCESS RM)	EXPLOSION PROOF INLINE SUPPLY FAN CAPACITY: 6,041 L/s @ 12.7 mm ESP (12,800 CFM @ 0.5" ESP) ELECTRICS: 208 V / 3PH / 60 HZ; 5 HP C/W VIBRATION ISOLATION MOUNTING HDWE., NON-SPARKING CONSTRUCTION TYPE AMCA-A, SAFETY SCREEN, EXPLOSION PROOF MOTOR, EXTENDED LUB LINES, REINFORCED WHEEL.	EXPLOSION PROOF COOK / 270SQIB SERIES
FN-2 (PROCESS RM)	EXPLOSION PROOF WALL MOUNTED EXHAUST FAN. CAPACITY: 6,135 L/s @ 38.1mm ESP (13,000 CFM @ 0.5" ESP) ELECTRICS: 208 V / 3 PH / 60 HZ; 3 HP. C/W VIBRATION ISOLATING MOUNTING HDWE., NON-SPARKING CONSTRUCTION TYPE AMCA-A, BIRD SCREEN, EXPLOSION PROOF MOTOR.	EXPLOSION PROOF COOK / 36EWB SERIES
FN-3 (VESTIBULE)	CEILING CABINET FAN CAPACITY: 80 L/s @ 6.3mm ESP. (170 CFM @ 0.25" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; 123 W, 1.3 A. C/W FACTORY WIRED SPEED CONTROL, BACKDRAFT DAMPER, VIBRATION ISOLATION MOUNTING HARDWARE.	COOK / GC-164
FN-4 (VESTIBULE)	CEILING CABINET FAN CAPACITY: 80 L/s @ 6.3mm ESP (170 CFM @ 0.25" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; 123 W, 1.3 A. C/W FACTORY WIRED SPEED CONTROL, BACKDRAFT DAMPER, VIBRATION ISOLATION MOUNTING HARDWARE.	COOK / GC-164
FN-5 (LOWER ELEC. RM.)	CEILING CABINET FAN CAPACITY: 79 L/s @ 6.3mm ESP (167 CFM @ 0.25" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; 123 W, 1.3 A. C/W FACTORY WIRED SPEED CONTROL, BACKDRAFT DAMPER, VIBRATION ISOLATION MOUNTING HARDWARE.	COOK / GC-164

HEATING & VENTILATING EQUIPMENT LIST

ITEM No.	DESCRIPTION	MF'R/MODEL
FN-6 (MEZZ. RM.)	CEILING CABINET FAN CAPACITY: 49 L/s @ 6.3mm ESP (104 CFM @ 0.25" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; 66 W, 0.7 A. C/W FACTORY WIRED SPEED CONTROL, BACKDRAFT DAMPER, VIBRATION ISOLATION MOUNTING HARDWARE.	COOK / GC-144
FN-7 **DELETED**	**DELETED**	**DELETED**
FN-8 (UPPER ELEC. RM.)	CEILING CABINET FAN CAPACITY: 79 L/s @ 6.3mm ESP (167 CFM @ 0.25" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; 123 W, 1.3 A. C/W FACTORY WIRED SPEED CONTROL, BACKDRAFT DAMPER, VIBRATION ISOLATION MOUNTING HARDWARE.	COOK / GC-164
FN-9 (TRUCK BAY)	INLINE EXHAUST FAN. CAPACITY: 382 L/s @ 38.1mm ESP (810CFM @ 1.5" ESP) ELECTRICS: 120 V / 1 PH / 60 HZ; 1/2 HP. C/W VIBRATION ISOLATION MOUNTING HARDWARE, BIRDSCREEN INSTALLED IN DUCT AT FAN INLET.	COOK/ 150 SQN SERIES
FN-10 (UTILITY RM.) **DELETED**	**DELETED**	**DELETED**
FN-11 **EXISTING** (WASHROOM)	EXISTING FAN IN WASHROOM AIRFLOW: 52 L/s @ 2.5mm ESP (110 CFM @ 0.1" ESP) ELECTRICS: 120 V / 1 PH / 60 HZ; 1.3 A.	**EXISTING** BROAN / 676 SERIES.
FN-12 (PROCESS TANK)	EXPLOSION PROOF HIGH PRESSURE EXHAUST FAN AIRFLOW: 140 L/s @ 25.4mm ESP (297 CFM @ 0.5" ESP). ELECTRICS: 120V / 1 PH / 60 HZ; 1/3 HP C/W NON SPARKING CONSTRUCTION TO AMCA A, EXPLOSION PROOF MOTOR, EISENHEISS OR SIMILAR ANTI-CORROSION FINISH ON INTERIOR AND EXTERIOR SURFACES OF FAN HOUSING AND WHEEL. ARRANGEMENT 9.	EXPLOSION PROOF REVERSEOMATIC / AF-8-4
FN-13 (PROCESS RM)	EXPLOSION PROOF TWO SPEED, WALL MOUNTED EXHAUST FAN. CAPACITY, LOW SPEED: 755 L/s @ 13mm ESP (1,600 CFM @ 0.5" ESP). CAPACITY, HIGH SPEED: 1510 L/s @ 13mm ESP (3,200 CFM @ 0.5 ESP). ELECTRICS: 208 V / 3 PH / 60 HZ; 1 HP. C/W VFD TO PROVIDE 2 SPEED OPERATION INSTALLED OUTSIDE OF CLASSIFIED SPACE, VIBRATION ISOLATING MOUNTING HDWE., NON-SPARKING CONSTRUCTION TYPE AMCA-A, BIRD SCREEN, EXPLOSION PROOF MOTOR.	EXPLOSION PROOF COOK/ 24A11 SERIES
FC-1 (PROCESS RM.)	TRANS PERFORMANCE CLIMATE CHANGER	A1
FC-2 (TRUCK BAY)	TRANS PERFORMANCE CLIMATE CHANGER	A2
FC-3, FC-4 (SERVES VESTIBULE)	REDUNDANT INLINE FAN UNITS WITH HYDRONIC HEATING COILS & FLOW PROOVING SWITCHES FOR AIR AND WATER. AIRFLOW: 80 L/S @ 13MM ESP (170 CFM @ 0.5" ESP) ELECTRICS: 120V / 1 PH / 60 HZ; HP 1/6. C/W DUCT MOUNTED HYDRONIC COILS EAT: -42°C (-43.6°F) LAT: 32°C (89°F) EWT: 82°C (180°F) FLUID FLOW: 2.8 USGPM; HEAD: 2.5 FT. H2O C/W AIRFLOW AND WATERFLOW PROVING SWITCHES, VIBRATION ISOLATING MOUNTING HARDWARE, BIRD SCREEN.	LAUREN COOK / 60SQN-B WITH COIL MCQUAY / SBS1402 SERIES
FC-5 (2ND FLR. ELEC. RM.)	TRANS PERFORMANCE CLIMATE CHANGER	A3
WF-1 (UTILITY RM.)	FIN TUBE BASEBOARD HEATER LENGTH: 6 FT. C/W 1" DIA CUAL TUBE, 3-1/4" SQUARE FINS SPACED AT 40 FINS PER FOOT, ONE TIER.	STERLING VERSALINE/ JVA-S11 ENCL. C/W C34 TYPE ELEMENT
WF-2 (MEZZ. RM.)	FIN TUBE BASEBOARD HEATER LENGTH: 13 FT. C/W 1" DIA CUAL TUBE, 3-1/4" SQUARE FINS SPACED AT 40 FINS PER FOOT, ONE TIER.	STERLING VERSALINE/ JVA-S11 ENCL. C/W C34 TYPE ELEMENT
WF-3 (WASH RM.) **EXISITNG**	EXISITNG - LOCATED IN WASHROOM	**EXSITING**
XTh	EXPLOSION PROOF HEATING THERMOSTAT	EXPLOSION PROOF BY DIV. 26.
XTv	EXPLOSION PROOF VENTILATION THERMOSTAT.	EXPLOSION PROOF BY DIV. 26.
XFTv	EXPLOSION PROOF VENTILATION FREEZE STAT. SET TO SHUT OFF HIGH RATE VENTILATION AT 5°C (41°F)	EXPLOSION PROOF BY DIV. 26.
Th	HEATING THERMOSTAT	BY DIV. 26.
Tv	VENTILATION THERMOSTAT.	BY DIV. 26.
MTh	MECHANICAL HEATING THERMOSTATS MECHANICAL THERMOSTATIC RADIATOR VALVES C/W STANDARD VALVE BODY, REMOTE THERMOSTATIC HEAD WITH USER ADJUSTMENT AND REGULUX LOCKSHIELD DRAIN/FILL FITTING.	HEIMEIER / STANDARD BODY C/W TYPE F REMOTE HEAD AND REGULUX LOCKSHIELD.
GD-1 GD-2	FLAMMABLE & TOXIC GAS DETECTORS	EXPLOSION PROOF BY DIV. 26.
GF-1	POLY PROPYLENE GLYCOL FEEDER SYSTEM. C/W 50 US GAL TANK IN STEEL FRAME, CONTROL SYSTEM, GEAR PUMP, INDICATOR LIGHTS & AUDIBLE LOW LEVEL ALARM AND SUCTION & DISCHARGE ASSEMBLIES. ELECTRICS: 120 V / 1 PH / 60 HZ; 1/3 HP	NEPTUNE / G-50-1A
EXP-1	BLADDER TYPE EXPANSION TANK CARBON STEEL SHELL, HEAVY DUTY BUTYL/EPDM RUBBER DIAPHRAGM RED OXIDE PRIMER FINISH. C/W AIR VENTS.	AMTROL / EXTROL AX80(V)

HEATING & VENTILATING EQUIPMENT LIST

ITEM No.	DESCRIPTION	MF'R/MODEL
AFS-1, 2, 3 & 4	FLOWLINE THERMO FLO	AX1X
WFS-1, 2.	WATER FLOW SWITCHES, PADDLE TYPE SENSITIVE TYPE SIZED TO SUIT PIPE SIZE. SWITCH RATING: 208 V AC / 1 HP (8.8 AMPS)	JOHNSON CONTROLS/ F61MD SERIES
SA GRILLES	ALUMINUM GRILLES SIZED TO SUIT SERVICE DUCT DIMENSIONS. C/W 3/4" SPACING, W/OPPOSED BLADE DAMPER.	NAILOR 51DH-O
SB GRILLES	HIGH CAPACITY EXTRUDED ALUMINUM GRILLE SIZED TO SUIT DUCT DIMENSIONS. C/W EXTRUDED ALUMINUM AIRFOIL BLADES ON 3" CENTERS, HORIZONTAL FRONT & VERTICAL REAR BLADES WITH OPPOSED BLADE DAMPER.	NAILOR 813DH-O
HC-1	ONE STAGE SETPOINT CONTROL. CONTROLLER TO ACCEPT TEMPERATURE INPUT FROM OUTDOOR SENSOR. CONTROLLER TO OUTPUT ON - OFF SIGNAL TO CONTROL WARM WEATHER SHUTDOWN ON EQUIPMENT INDICATED ON DRAWING.	TEKMAR / A 150
ODS-1	OUTDOOR SENSOR FOR USE WITH TEKMAR 274 AND 150 CONTROLS	TEKMAR / OUTDOOR SENSOR 070
BS-1	BOILER SUPPLY SENSOR FOR USE WITH TEKMAR 274 CONTROL	TEKMAR / OUTDOOR SENSOR 082
GS-1	GENERAL USE SENSOR FOR USE WITH TEKMAR 274 AND 361 CONTROLS	TEKMAR / SENSOR 071
Th-1	HYDRONIC SYSTEM THERMOMETER. RANGE: -1 TO 115 DEG. C (30 TO 240 DEG. F) SCALE SIZE: 14 CM (5-1/2" LONG.) STRAIGHT OR RIGHT ANGLE TO SUIT APPLICATION C/W 13MM (1/2") BRASS THERMOWELL	TRERICE / HT30 SERIES AND HT31 SERIES TO SUIT APPLICATION
PG-1	HYDRONIC SYSTEM PRESSURE GAUGE. INDUSTRIAL, LIQUID FILLED PRESSURE GAUGE WITH STAINLESS STEEL CASE, CRIMPED RING AND WETTED PARTS. DIAL SIZE: 100MM (4") RANGE: 0 TO 207 KPA (0 TO 30 PSI) STRAIGHT OR RIGHT ANGLE ARRANGMENT TO SUIT APPLICATION	TRERICE / 700 SERIES TO SUIT APPLICATION.
STR-1	WYE PATTERN BRONZE STRAINERS SIZE TO SUIT PIPE SIZE. C/W STANDARD SCREEN AND SOLID RETAINER CAP WITH GASKET	WATTS / 777 SERIES
FD-1	FIRE DAMPER, DYNAMIC RATED, CURTAIN TYPE, STANDARD FRAME. C/W FUSIBLE LINK ACTUATOR. SIZED TO SUIT OPENING. FOR INSTALLATION WHERE INDICATED ON DRAWING AND ANYWHERE THAT DUCTWORK PENETRATES A FIRE SEPARATION.	NAILOR / SERIES D0110 TYPE A

HEATING & VENTILATION NOTES

1. EQUIPMENT NOTED ON THIS DRAWING IS IDENTIFIED BY TRADE NAME TO INDICATE MINIMUM ACCEPTABLE QUALITY. REFER TO SPECIFICATIONS FOR INFORMATION REGARDING SUBSTITUTIONS.
2. ALL EQUIPMENT NOTED ON THIS DRAWING TO BE NEW EQUIPMENT UNLESS OTHERWISE NOTED.
3. INSULATE ALL DUCTWORK IN SUSPENDED CEILING SPACE WITH 25mm THICK FIBERGLASS DUCT WRAP, FINISHED WITH VAPOUR PROOF JACKET. SEAL ALL JACKET SEAMS.
4. INSULATE ALL DUCTWORK IN ATTICS AND OTHER UNHEATED SPACES WITH 75mm THICK FIBREGLASS DUCT WRAP, FINISHED WITH VAPOUR PROOF JACKET. SEAL ALL JACKET SEAMS.
5. ADJUST THE LOCATIONS OF EQUIPMENT, DUCTWORK, DIFFUSERS & GRILLES TO ACCOMMODATE OTHER TRADES.
6. ALL DUCTWORK TO BE GALVANIZED STEEL UNLESS OTHERWISE NOTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE SMACNA STANDARDS.
7. SHORT (MAX. 750mm LONG) INSULATED FLEX DUCTS MAY BE USED TO CONNECT METAL DUCTS TO FLEXIBLE DUCT CONNECTORS (MIN. 150mm LONG) WHERE DUCTWORK CONNECTS TO DIFFUSERS & GRILLES.
8. INSTALL FLEXIBLE DUCT CONNECTORS (MIN. 150mm LONG) WHERE DUCTWORK CONNECTS TO ANY MOTORIZED EQUIPMENT.
9. MOUNT ALL FANS ON VIBRATION ISOLATORS.
10. INSTALL ULC LISTED FIRE RATED FIRE DAMPERS WHERE SHOWN AND IN ALL DUCTS THAT PENETRATE FIRE SEPARATIONS (REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE SEPARATIONS)
11. INSULATE ALL EXHAUST AND INTAKE DUCTWORK AS WELL AS COMBUSTION AIR INTAKE DUCT TO EXTERIOR WALL WITH 25mm THICK FIBREGLASS DUCT WRAP COVERED WITH VAPOUR IMPERMEABLE JACKET.
12. PROVIDE ALL INSULATION MATERIAL IN ACCORDANCE WITH CAN/ULC S102 WITH MAXIMUM FLAME SPREAD RATING OF 25 AND MAXIMUM SMOKE DEVELOPED RATING OF 50.
13. CONTRACTOR TO ENSURE THAT EXISTING ELECTRICAL SERVICE IS SUITABLE FOR PROPOSED NEW MECHANICAL EQUIPMENT AS LISTED ABOVE.
14. ALL STATIC PRESSURES, (ESP = EXTERNAL STATIC PRESSURE), NOTED ARE EXTERNAL TO ALL PACKAGED UNIT ACCESSORIES. ESP'S QUOTED DO NOT INCLUDE FILTER LOSSES.
15. REFER TO SPECIFICATION FOR DETAILS ON ACOUSTIC AND THERMAL DUCT INSULATION REGARDING SUBSTITUTIONS.
16. INSTALL BALANCING DAMPERS ON ALL SERVICE DUCTS TO EACH DIFFUSER.
17. ALL EXPOSED DUCTWORK, DIFFUSERS, GRILLES AND REGISTERS SHALL BE FINISHED WITH WHITE POWDER COAT PAINT.

FUEL EQUIPMENT LIST

ITEM No.	DESCRIPTION	MF'R/MODEL
FT-1	ABOVE GROUND DOUBLE WALL OUTDOOR FUEL STORAGE TANK FOR BOILERS. 15,000 L (3300 IMP. GAL.) CAPACITY C/W END SUPPORTS, VM-3 TANK MOUNTED VACUUM GAUGE WITH COVER, OVERFILL SPILL COLLECTOR, EMERGENCY VENT, NORMAL VENT, DIPSTICK AND GAUGE CHART, ACCESS STAIRS WITH HANDRAIL AND PLATFORM, BLAST FINISH WITH ONE COAT OF PRIMER AND ONE COAT OF WHITE ENAMEL COATINGS, REMOTE INTERSTITIAL VACUUM MONITORING AND HIGH / LOW LEVEL ALARM SWITCHES TO SUIT TANK.	CLEMMER / ITEM 1 PER QUOTE CCA-17563-12.DOC WITH ADDITIONAL LEVEL SWITCHES.
DT-1	ABOVEGROUND DOUBLE WALL INDOOR FUEL OIL DAY TANK FOR BOILERS. 1150 L CAPACITY (250 IMP. GAL.) BUILT AND LABELLED TO ULC S 602 BLAST FINISHED AND BLUE EXPOXY COATED C/W SADDLES, INTERSTITIAL VENT CONNECTION, INTERSTITIAL VACUUM GAUGE WITH SWITCH, RPCA-2 REMOTE MONITOR AND 4 STATION LEVEL SWITCH TO SUIT TANK.	CLEMMER / ITEM 2 PER QUOTE CCA-17563-12.DOC WITH ADDITIONAL LEVEL SWITCHES.
FP-1	PACKAGED DUPLEX FUEL OIL PUMPING SYSTEM WITH CONTROLLER. C/W DUPLEX PUMPS, SUCTION STRAINER, RELIEF VALVES, ISOLATION VALVES, LIQUID FILLED PRESSURE GAUGES, ULC / CSA LISTED ALBANY DUCON SERIES DUPLEX FUEL MANAGEMENT CONTROL CENTER IN NEMA 12 ENCLOSURE AND ALL ASSOCIATED ACCESSORIES AND PIPING. SYSTEM CAPACITY: 7.6 L/M (2 USGPM) OF #2 HEATING OIL. ELECTRICAL: 208V / 3 PH / 60 HZ; 1/2 HP SYSTEM IS TO PROVIDE DRY CONTACT ALARM OUTPUTS SUITABLE FOR INTEGRATION INTO SCADA CONTROLLER FOR MAIN TANK LOW FUEL, DAY TANK HIGH AND LOW LEVEL ALARM.	ALBANY PUMP / FODUP/03GC/BS

FUEL EQUIPMENT NOTES

1. CONTRACTOR TO FIELD CONFIRM DIMENSIONS OF TANK PRIOR TO CONSTRUCTION.
2. FUEL OIL STORAGE TANKS AND PIPING SYSTEM TO BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL FIRE CODE OF CANADA AND CCME ENVIRONMENTAL CODE OF PRACTICE FOR ABOVEGROUND AND UNDERGROUND STORAGE TANK SYSTEMS CONTAINING PETROLEUM AND ALLIED PETROLEUM PRODUCTS AND CSA B139-10.
3. INSTALL EQUIPMENT TO APPLICABLE CODES, STANDARDS, DETAILS IN SPECIFICATIONS AND ON DRAWINGS, OR MANUFACTURERS RECOMMENDATIONS. IN THE EVENT OF A CONFLICT, CONSULT ENGINEER REGARDING DIRECTION.
4. CONTRACTOR TO PROVIDE EQUIPMENT SHOP DRAWINGS OF ALL MECHANICAL & ELECTRICAL COMPONENTS FOR ENGINEER'S APPROVAL PRIOR TO SUPPLY & INSTALLATION.
5. ABOVE GROUND PIPE TO BE WELDED.
6. FUEL TRANSFER SUPPLY & RETURN PIPING TO BE AIR TESTED AT 1.5 TIMES MAXIMUM FUEL PUMP WORKING PRESSURE. CONTRACTOR TO PROVIDE PRESSURE TEST CERTIFICATE TO THE ENGINEER.
7. MISCELLANEOUS STEEL TO BE PREPARED IN ACCORDANCE WITH STANDARD SSPC-SP2. CONTRACTOR TO INSTALL PIPE ANCHORS AND GUIDES AS REQUIRED TO SUPPORT ABOVE GROUND PIPING.

   MAX. PIPE SUPPORT/HANGER SPACING:
   50mm PIPE = 3 METERS
   75mm PIPE = 3.6 METERS
8. CONTRACTOR TO RECORD AS-BUILT LOCATIONS OF ALL INSTALLED EQUIPMENT & PIPING.
9. CONTRACTOR TO SUPPLY & INSTALL LINE IDENTIFICATION ON ALL EXPOSED PIPING C/W FLOW ARROWS.
10. CONTRACTOR TO SUPPLY & INSTALL IDENTIFICATION LABELS TO ALL TANKS SO TANKS ARE EASILY IDENTIFIABLE IN RELATION TO CONTROL PANELS. LETTERS ARE TO BE BLACK IN COLOUR, 75mm HIGH.
11. CONTRACTOR TO PROVIDE IDENTIFICATION TAGS FOR ALL EQUIPMENT & VALVES. CONTRACTOR TO PROVIDE VALVE SCHEDULE IN O&M MANUAL ONCE PROJECT IS COMPLETE.
12. TANK VENTS FOR MAIN TANKS TO BE 1.0m ABOVE TOP OF TANKS.
13. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH HEATING AND HOARDING, IF REQUIRED. HEATING AND HOARDING MAYBE REQUIRED FOR CONCRETE CURING & BACKFILLING AT TANK SITE.
14. CONTRACTOR TO POST FILL PROCEDURE AT MAIN TANK CONTROL PANEL LOCATION. FILL PROCEDURES TO BE INSCRIBED ON LAMOCOID PLATES (WHITE LETTERING ON BLACK BACKGROUND) PERMANENTLY INSTALLED AT EACH LOCATION. PROVIDE SHOP DRAWINGS FOR ENGINEER'S APPROVAL.
15. SEE TENDER DOCUMENTS FOR MATERIAL SPECIFICATIONS.

	Issue / Revision	Date
1	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
2	ISSUED FOR 99% SUBMISSION	JANUARY 2013
3	ISSUED FOR TENDER	FEBRUARY 2013
4	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
5	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

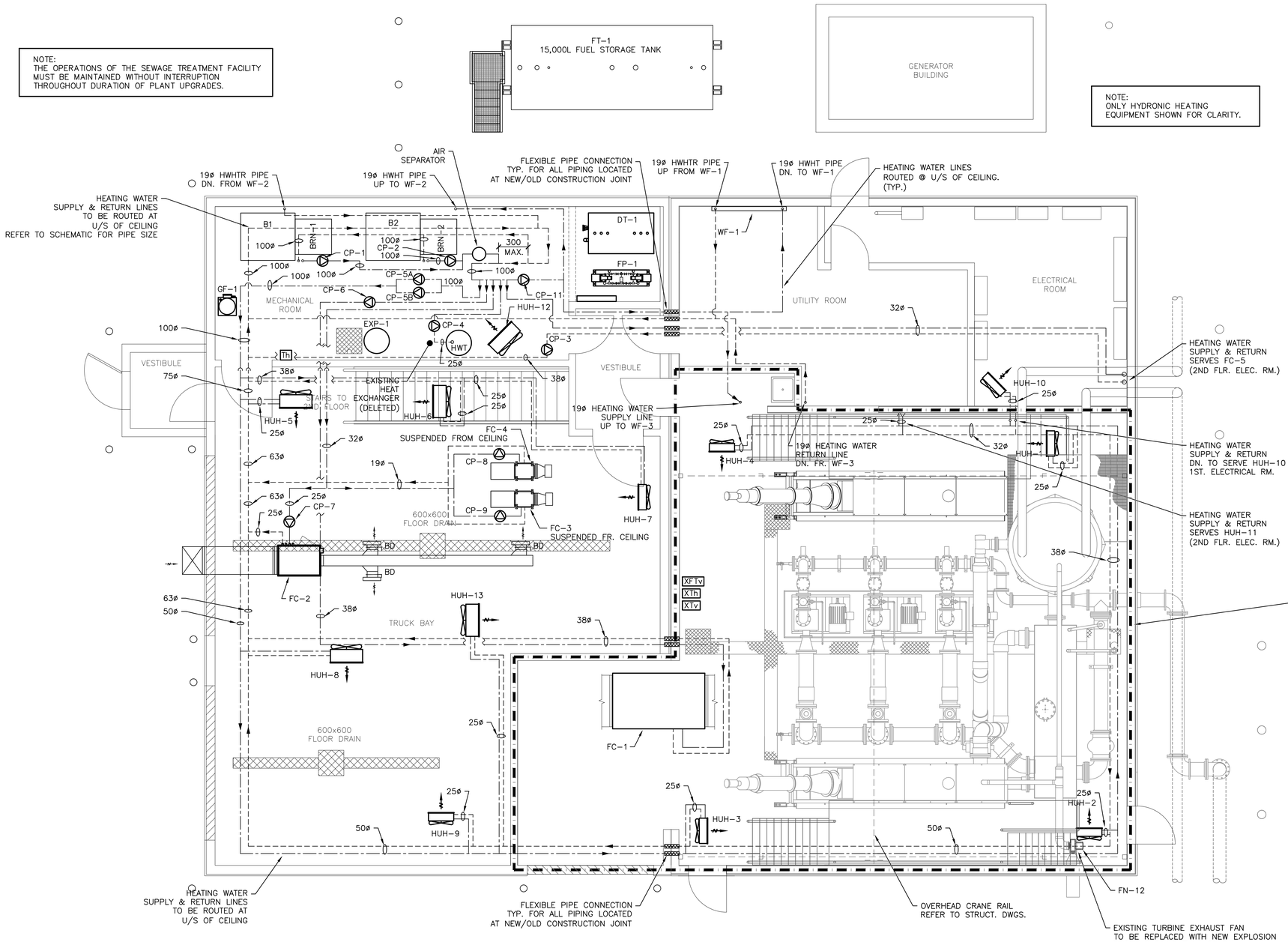
Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
MECHANICAL EQUIPMENT SCHEDULE & NOTES

Drawn By	Checked By	Drawing No.
A.H.	D.McoK.	M-4
Scale: NTS	Project No.: 3000.31281	

NOTE:
THE OPERATIONS OF THE SEWAGE TREATMENT FACILITY MUST BE MAINTAINED WITHOUT INTERRUPTION THROUGHOUT DURATION OF PLANT UPGRADES.



MECHANICAL HYDRONIC PIPING – GROUNDFLOOR PLAN
1:50

NOTE:
ONLY HYDRONIC HEATING EQUIPMENT SHOWN FOR CLARITY.

HYDRONIC PIPE LEGEND

- HYDRONIC SUPPLY PIPE
- HYDRONIC RETURN PIPE

NOTE:
PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT INSTALLED WHERE BUILDING TRANSITIONS FROM NEW CONSTRUCTION AND EXISTING CONSTRUCTION TO ACCOMMODATE FOR DIFFERENTIAL SETTLEMENT.

NOTE:
THE PROCESS ROOM IS A CLASSIFIED HAZARDOUS AREA. ALL MATERIAL IN THIS AREA SHALL BE NON-SPARKING CONSTRUCTION, CLASS 1, ZONE 1, GROUP IIA, EXPLOSION PROOF CONSTRUCTION

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

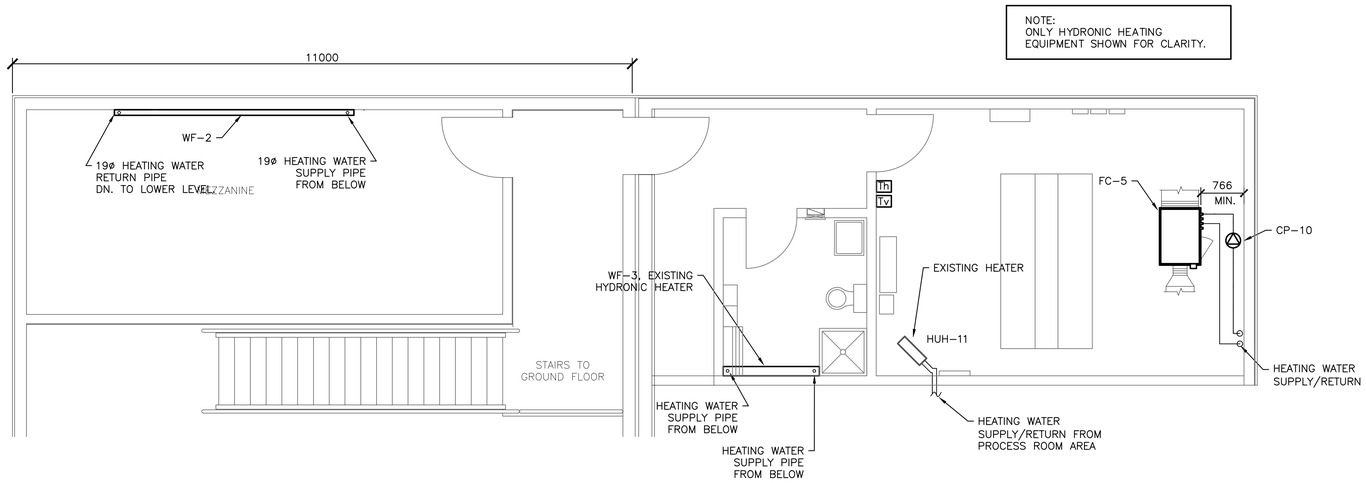
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

RANKIN INLET
SEWAGE TREATMENT PLANT

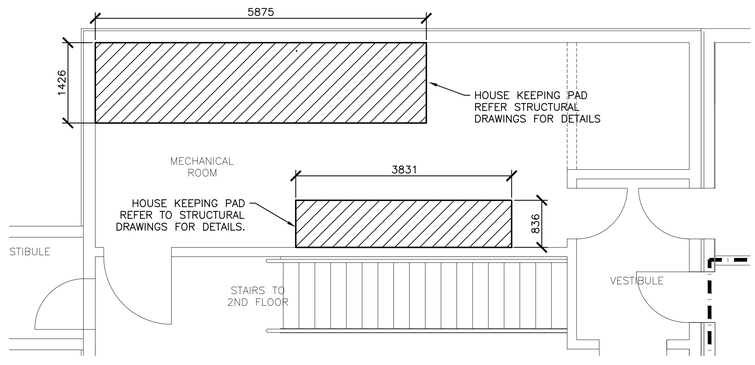
Drawing Title
GROUND FLOOR MECHANICAL HYDRONIC HEATING LAYOUT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-5
Scale: AS NOTED	Project No.: 300031281	



MECHANICAL HYDRONIC PIPING – MEZZANINE FLOOR PLAN

1:50



MECHANICAL ROOM HOUSE KEEPING PAD PLAN

1:50

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING

AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:

KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

Nuna Burnside

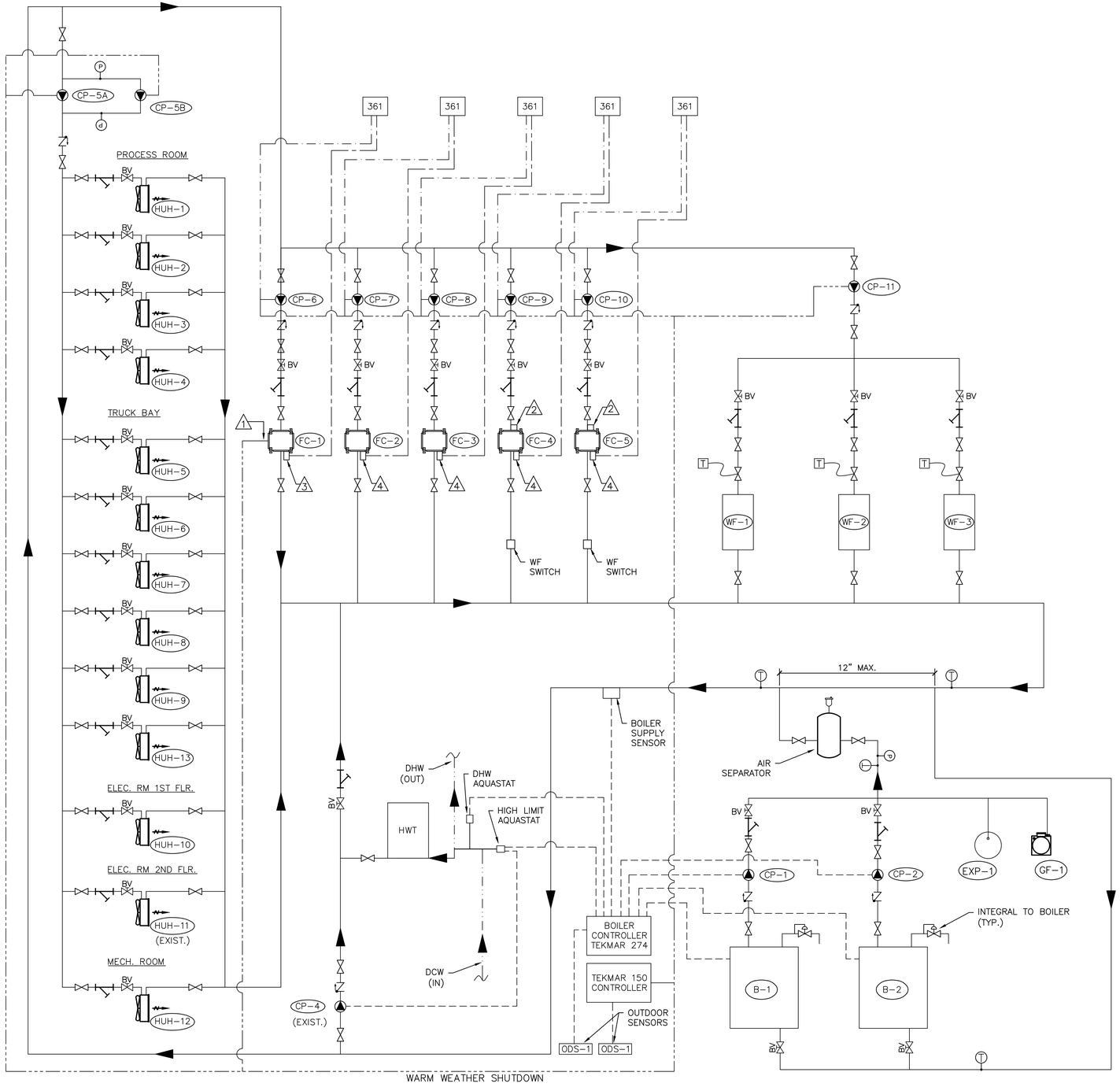
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
SECOND FLOOR
MECHANICAL HYDRONIC
HEATING LAYOUT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-6
Scale: AS NOTED	Project No.: 300031281	



MECHANICAL HYDRONIC LEGEND

- HYDRONIC ISOLATION VALVE
- HYDRONIC CHECK VALVE INSTALL ON PUMP DISCHARGE
- INLINE CIRCULATING PUMP
- FLOW DIRECTION
- BV — HYDRONIC BALANCING VALVE INSTALL ON SUPPLY TO EA. HEATER.
- B-1 — EQUIPMENT TAG
- T — THERMOSTATIC RAD VALVE C/W WALL MOUNTED TEMPERATURE CONTROL
- DIFFERENTIAL PRESSURE RELIEF VALVE
- P — PRESSURE GAUGE
- T — TEMPERATURE GAUGE
- STRAINER

NOTES

1. INSTALL AUTOMATIC AIR VENTS AT HIGH POINTS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS BEFORE PROCEEDING WITH ANY PART OF THE WORK.
3. THE PIPING CONTAINED ON THIS DRAWING IS DIAGRAMMATIC IN NATURE AND IS NOT INTENED TO SHOW EXACT LOCATIONS OR DIMENSIONS UNLESS OTHERWISE INDICATED.

NOTE:
ALL MATERIAL IN THE PROCESS ROOM SHALL BE NON-SPARKING CONSTRUCTION, CLASS 1, ZONE 1, GROUP IIA, EXPLOSION PROOF CONSTRUCTION.

CONTROLS NOTES

1. WARM WEATHER SHUT DOWN TO CAUSE FC-1 TO SWITCH TO HI FAN SPEED IN SUMMER & LOW FAN SPEED IN WINTER.
2. IF NO AIRFLOW OR NO WATER FLOW ON RUNNING UNIT – THEN SWITCH ON OTHER UNIT. ONE UNIT IS CP-9 & FC-4 OTHER UNIT IS CP-10 & FC-5.
3. 10K OHM EXPLOSION PROOF TEMP. SENSOR TO BE INSTALLED IN AIR DUCT OF FAN COIL.
4. TEKMAR TEMP. SENSOR TO BE INSTALLED IN AIR DUCT OF FAN COIL.

NOTE:
PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT INSTALLED WHERE BUILDING TRANSITIONS FROM NEW CONSTRUCTION AND EXISTING CONSTRUCTION TO ACCOMMODATE FOR DIFFERENTIAL SETTLEMENT.

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

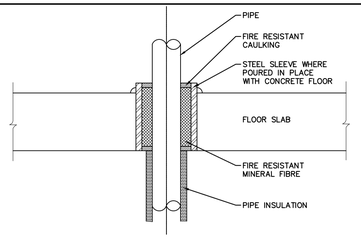
Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

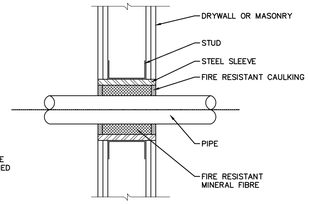
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
MECHANICAL
HYDRONIC HEATING SCHEMATIC

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-7
Scale: NTS	Project No.: 300031281	



VERTICAL FIRE SEPARATION

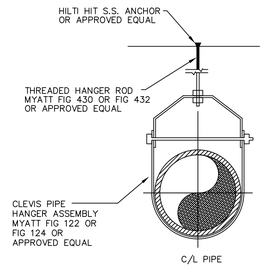


NOTE:
FIRE STOPPING SHALL BE INSTALLED BY A QUALIFIED APPLICATOR.

HORIZONTAL FIRE SEPARATION

FIRE PENETRATION DETAIL
SCALE N.T.S.

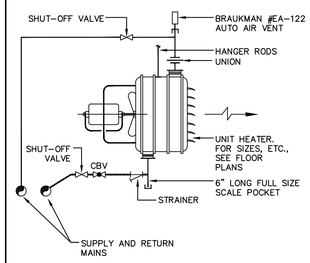
MECH 020



NOTE : ALL COMPONENTS TO BE STAINLESS OR GALVANIZED STEEL UNLESS NOTED OTHERWISE

CEILING MOUNTED PIPE HANGER SUPPORT
N.T.S.

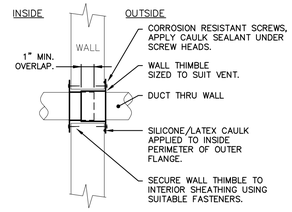
Mech-98.DWG



TYPICAL HORIZONTAL UNIT HEATER PIPING DETAIL
SCALE N.T.S.

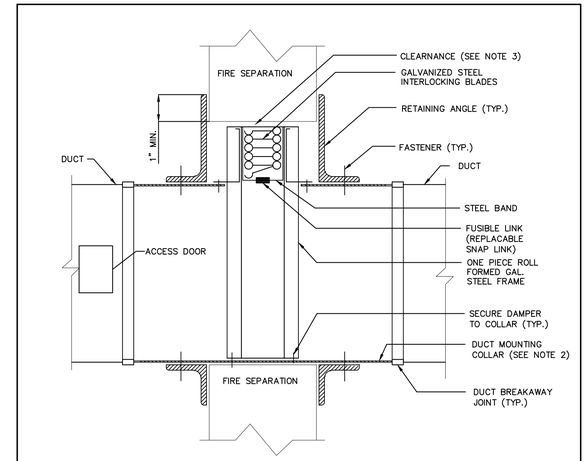
MECH 043

043



NOTE:
WALL THIMBLE REQUIRES MECHANICAL SUPPORT FROM THE WALL, SUFFICIENT ENOUGH TO SUPPORT INCIDENTAL LOADS ON THE SYSTEM. IF THE WALL IS NOT SUFFICIENT TO SUPPORT THE WALL THIMBLE, THEN ADDITIONAL FRAMING AND/OR BLOCKING IS REQUIRED.

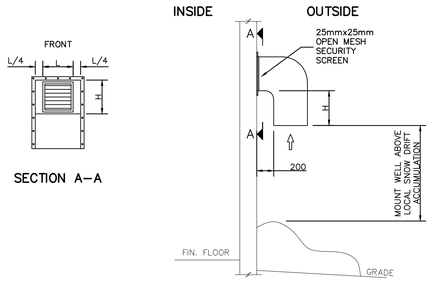
WALL THIMBLE DETAIL (TYP)
N.T.S.



NOTES:
1. ASSEMBLY SHALL BE U.L.C. APPROVED AND SHALL BE TYPE 'B'.
2. DUCT MOUNTING COLLAR SHALL BE OF THE SAME GAUGE OR HEAVIER AS THE DUCT BUT SHALL NOT BE LIGHTER THAN 20 GAUGE.
3. CLEARANCE SHALL BE 1/8" PER FOOT ON HEIGHT AND WIDTH OF DAMPER TO A MAXIMUM OF 1/2".

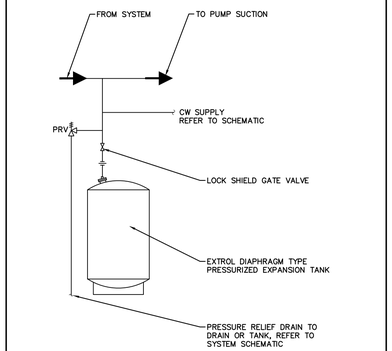
FIRE RATED WALL PENETRATION DETAIL
N.T.S.

020



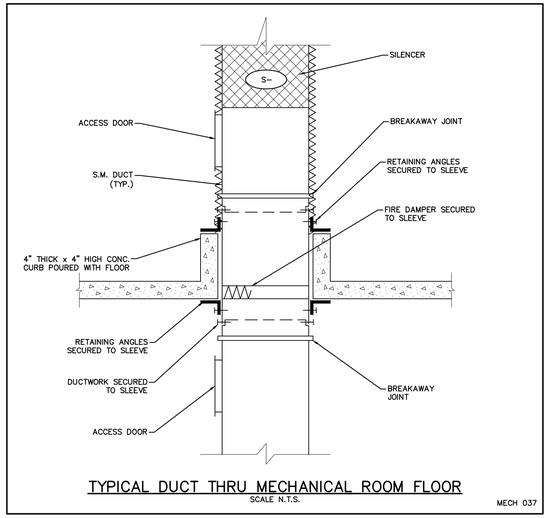
SECTION A–A

COWLING DETAIL
N.T.S.



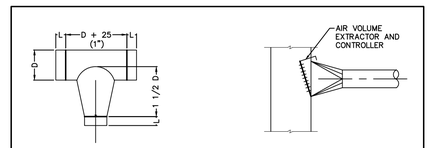
DIAPHRAGM EXPANSION TANK DETAIL
SCALE N.T.S.

MECH 058



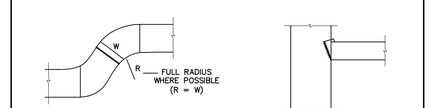
TYPICAL DUCT THRU MECHANICAL ROOM FLOOR
SCALE N.T.S.

MECH 037



90° CONICAL TEE

RECTANGULAR TO ROUND DUCT TAKE OFF



DUCT TAKE–OFF

RECTANGULAR DUCT TAKE–OFF

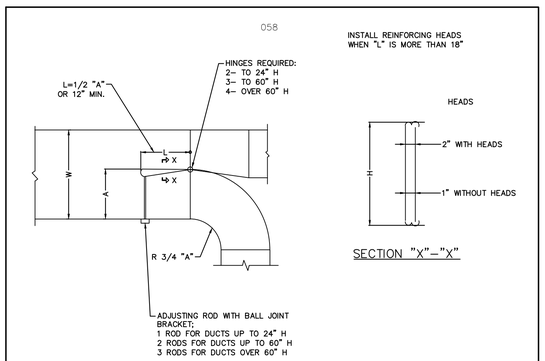
DUCT DECREASER

DUCT INCREASER

DUCTWORK DETAILS
SCALE N.T.S.

MECH 033

033



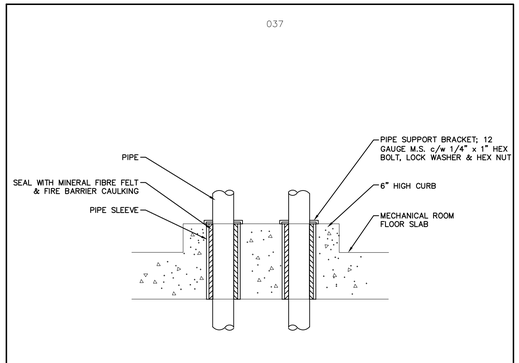
AIR INTAKE HOOD DETAIL
NTS

058

SPLITTER DAMPER DETAIL
SCALE N.T.S.

MECH 036

037



PIPE PENETRATION THRU MECHANICAL ROOM FLOOR DETAIL
SCALE N.T.S.

MECH 050

1. This drawing is the exclusive property of Nuna Burnside and the reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
4. Do not scale the drawings.

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS–BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

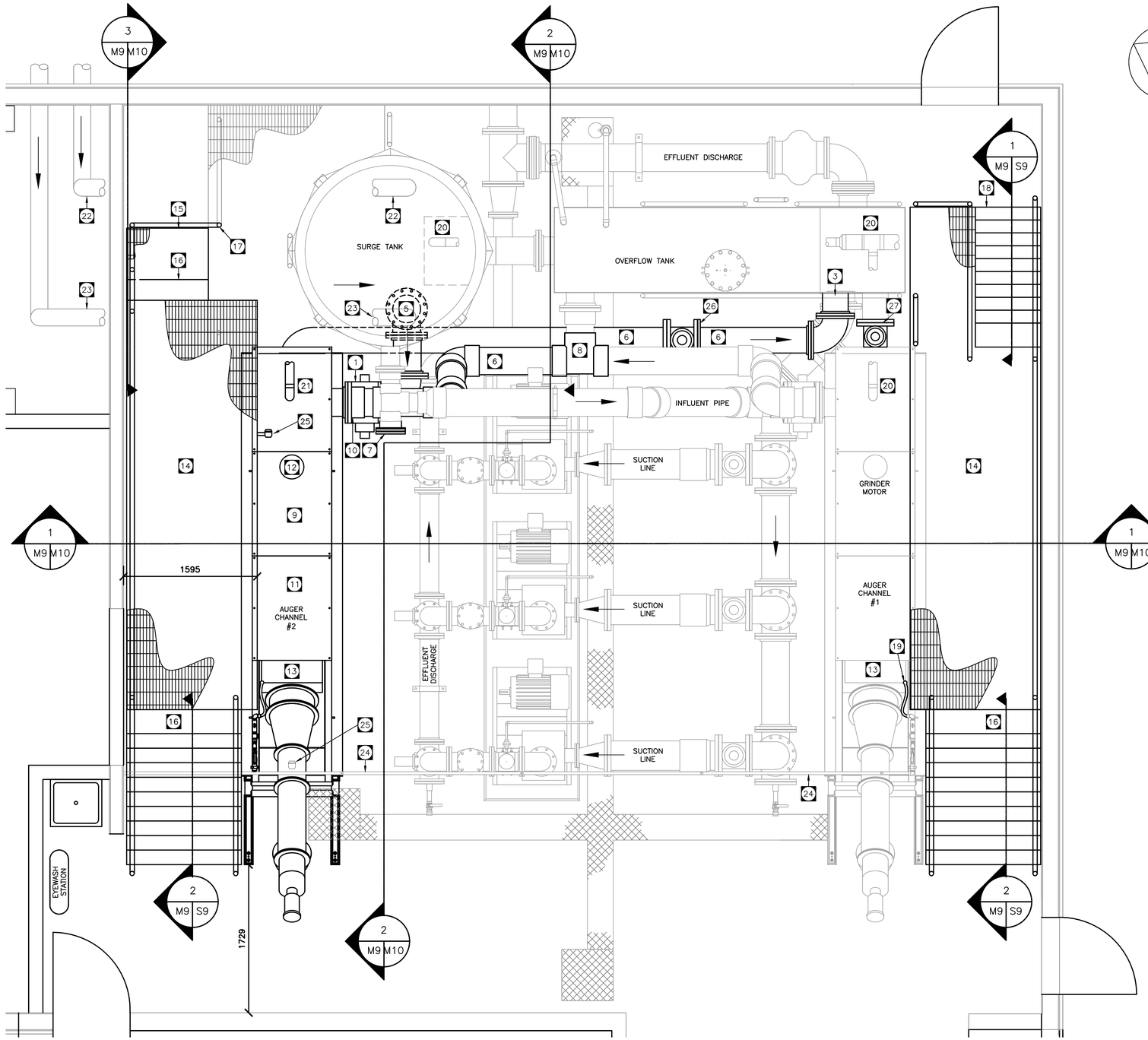
ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
MECHANICAL
STANDARD DETAILS 1

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-8
Scale: NTS	Project No. 300031281	



CONSTRUCTION NOTES:

1. INSTALL NEW 300ø PLUG VALVE ON AUGER CHANNEL INLET
2. INSTALL NEW FLANGE CONNECTION TO EXISTING BOTTOM OF SURGE TANK (NOT SHOWN ON DRAWING)
3. INSTALL NEW 300ø DISCHARGE PIPE FLANGE CONNECTION TO EXISTING 300ø FLANGE ON OVERFLOW TANK
4. INSTALL PIPE SUPPORTS AS REQUIRED TO FULLY SUPPORT PIPING (NOT SHOWN ON DRAWING)
5. PENETRATION AT BOTTOM OF SURGE TANK TO BE C/W 300mm STEEL STUB AND FLANGE. PIPING FROM STEEL FLANGE PENETRATION TO BE PVC SCHEDULE 80 TO AUGER CHANNEL.
6. INSTALL 300ø PVC SCHEDULE 80 PIPING
7. REMOVE EXISTING PLUG VALVE AND INSTALL BLIND FLANGE
8. DISCONNECT EXISTING AUGER CHANNEL #1 OVERFLOW CONNECTION TO OVERFLOW TANK AND INSTALL NEW 300ø PVC TEE. CONNECT TO EXISTING AND NEW AUGER CHANNEL OVERFLOW PIPING.
9. COVER SCREEN CHANNEL WITH REMOVABLE CHECKER PLATE PANELS. SEE APPENDIX 'B' IN SPECIFICATIONS FOR DETAILS
10. CONNECT NEW 300ø PVC OVERFLOW PIPING TO AUGER CHANNEL FLANGED OUTLET
11. NEW AUGER CHANNEL REFER TO DRAWING M10 AND SPECIFICATIONS APPENDIX 'B' FOR DETAILS
12. NEW GRINDER MOTOR
13. INSTALL NEW AUGER TANK COVER (NOT SHOWN FOR CLARITY – SEE DWG S-9 FOR DETAILS)
14. NEW CATWALK C/W GUARDS & RAILINGS (SEE DWG S-8 FOR DETAILS)
15. EXTEND EXISTING PLATFORM
16. NEW CATWALK STAIRS (SEE DWG S-9 FOR DETAILS)
17. INSTALL NEW PLATFORM RAILING CUT AND CONNECT TO EXISTING RAILING
18. NEW CATWALK STAIRS (SEE DWG S-9 FOR DETAILS)
19. RELOCATE AUGER CHANNEL WATER SPRAY. REFER TO MECHANICAL
20. EXISTING PROCESS VENTILATION AT HIGH LEVEL (PARTIALLY SHOWN FOR CLARITY)
21. NEW PROCESS VENTILATION EXTENDED TO NEW AUGER CHANNEL PARTIALLY SHOWN. REFER TO MECHANICAL
22. JOHNSON COVE 200mm H.D.P.E. FORCEMAIN (PARTIALLY SHOWN FOR CLARITY)
23. NUVUK 200mm H.D.P.E. FORCEMAIN (PARTIALLY SHOWN FOR CLARITY)
24. DOMESTIC WATER SERVICE TO BE REMOVED. REFER TO MECHANICAL
25. ULTRA SONIC TRANSDUCER (SENSOR) – 2 REQUIRED. SENSOR SURFACE SHALL BE MOUNTED A MINIMUM OF 250mm ABOVE THE CHANNEL HIGH WATER LEVEL. REFER TO DWG M-10 FOR FURTHER DETAILS
26. 300mmø PLUG VALVE FOR AUGER CHANNEL #2 DISCHARGE LINE.
27. 250mmø PLUG VALVE FOR AUGER CHANNEL #1 DISCHARGE LINE.

1:25 0 0,5 1.5m

	Issue / Revision	Date
1	ISSUED FOR CLIENT REVIEW	OCTOBER 2012
2	ISSUED FOR 66% SUBMISSION	NOVEMBER 2012
3	ISSUED FOR 99% SUBMISSION	JANUARY 2013
4	ISSUED FOR TENDER	FEBRUARY 2013
5	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
6	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

EXISTING	LEGEND – PLAN	PROPOSED	EXISTING	LEGEND – PLAN	PROPOSED
	OBJECT LINEWORK				
	FLOOR TRENCH				
	CATWALK/PLATFORM				
	FLOW DIRECTION				

Nuna Burnside

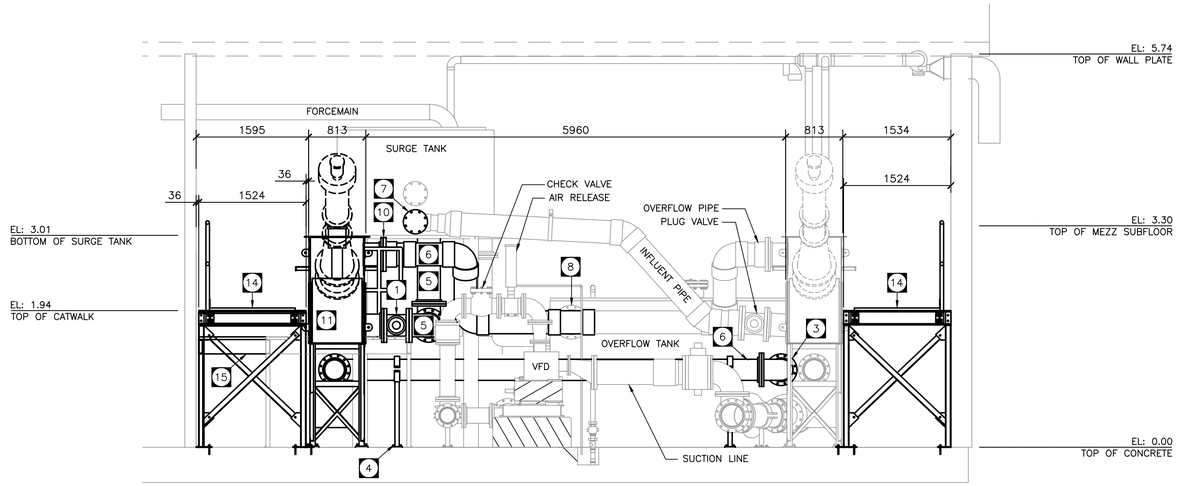
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES

RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
SEWAGE PROCESS EQUIPMENT PLAN

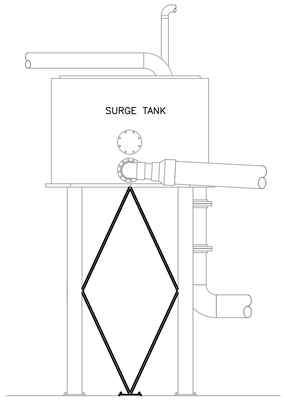
Drawn By	Checked By	Drawing No.
G. GERUS	G. POPOWICH	M-9
Scale 1:25	Project No. 300031281	



1 / M9 M10 MECHANICAL PROCESS SECTION
1:40

CONSTRUCTION NOTES:

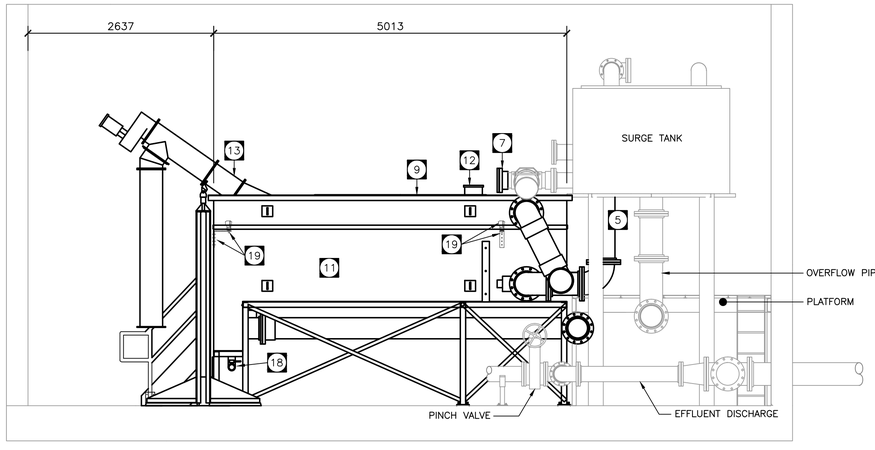
1. INSTALL NEW 300ø PLUG VALVE ON AUGER CHANNEL INLET
2. INSTALL NEW FLANGE CONNECTION TO EXISTING BOTTOM OF SURGE TANK (NOT SHOWN ON DRAWING)
3. INSTALL NEW 300ø DISCHARGE PIPE FLANGE CONNECTION TO PLUG VALVE GOING TO OVERFLOW TANK
4. INSTALL PIPE SUPPORTS AS REQUIRED TO FULLY SUPPORT PIPING (NOT SHOWN ON DRAWING)
5. INSTALL 300ø DUCTILE IRON PIPE AND FLANGE
6. INSTALL 300ø PVC SCHEDULE 80 PIPING
7. REMOVE EXISTING PLUG VALVE AND INSTALL BLIND FLANGE
8. DISCONNECT EXISTING AUGER CHANNEL #1 OVERFLOW CONNECTION TO OVERFLOW TANK AND INSTALL NEW 300ø PVC TEE. CONNECT TO EXISTING AND NEW AUGER CHANNEL OVERFLOW PIPING.
9. COVER SCREEN CHANNEL WITH REMOVABLE CHECKER PLATE PANELS. SEE APPENDIX 'B' IN SPECIFICATIONS FOR DETAILS
10. CONNECT NEW 300ø PVC OVERFLOW PIPING TO AUGER CHANNEL FLANGED OUTLET
11. NEW AUGER CHANNEL
12. NEW GRINDER MOTOR
13. INSTALL NEW AUGER TANK COVER (NOT SHOWN FOR CLARITY – SEE DWG S-9 FOR DETAILS)
14. NEW CATWALK C/W GUARDS & RAILINGS (SEE DWG S-8 FOR DETAILS)
15. EXTEND EXISTING PLATFORM
16. NEW CATWALK STAIRS STEP (SEE DWG S-9 FOR DETAILS)
17. INSTALL NEW PLATFORM RAILING CUT AND CONNECT TO EXISTING RAILING
18. AUGER CHANNEL SAMPLE BALL VALVE
19. ULTRA SONIC TRANSDUCER (SENSOR) – 2 REQUIRED. TRANSDUCER SHALL BE MOUNTED TO STAINLESS MOUNTING BRACKET AS SHOWN TO PROVIDE VERTICAL ADJUSTMENT TO SUIT. REFER TO DWG M-9 FOR FURTHER DETAILS



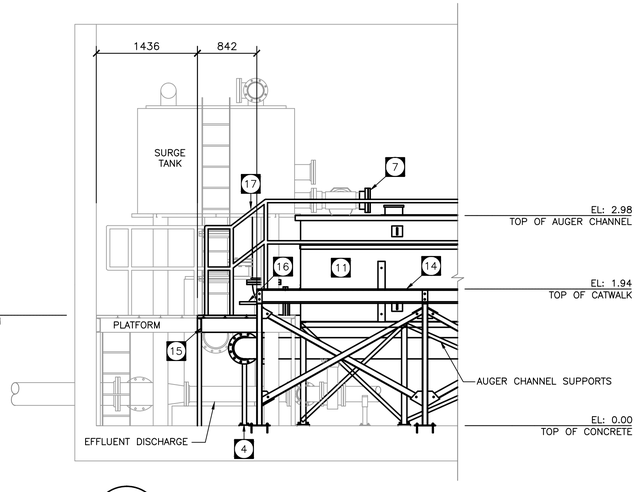
NOTES

1. REMOVE EXISTING CROSS BRACING ON SOUTH SIDE OF SURGE TANK SUPPORTS
2. INSTALL NEW KNEE BRACING ON FOUR CORNERS ON SOUTH SIDE OF SURGE TANK SUPPORTS
3. NEW SURGE TANK LEG SUPPORTS ARE TO BE INCLUDED BUT NOT LIMITED TO SPECIFICATIONS UNDER SECTION 05-50-10 STEEL TANK, ELEVATED PLATFORM AND STAIRS
4. ALL NEW STEEL SUPPORTS TO BE PAINTED AS PER SPECIFICATION

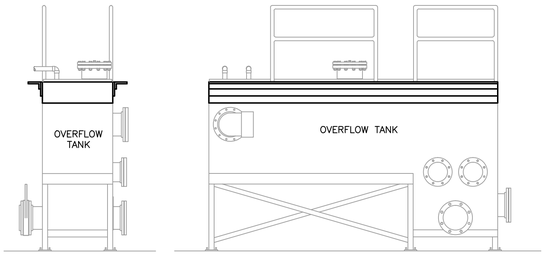
SURGE TANK DETAIL
NTS



2 / M9 M10 MECHANICAL PROCESS SECTION
1:40



3 / M9 M10 MECHANICAL PROCESS SECTION
1:40



NOTES

1. OVERFLOW TANK WALLS TO BE RAISED 300mm VERTICALLY. STEEL PLATE TO BE 300W AND 0.25mm THICK. WORK TO BE AS PER SECTION 05-50-10 STEEL TANK, ELEVATED PLATFORM AND STAIR SPECIFICATION
2. ALL EXISTING RAILING TO BE RELOCATED AT NEW RAISED ELEVATION
3. ASSOCIATED WORKS SHALL INCLUDE MODIFICATION TO TANK, RELOCATION OF TANK GRATING COVER AND ULTRASONIC LEVEL SENSOR TO RAISED ELEVATION
4. RELOCATION OF ALL MECHANICAL PIPING TO SUIT SIDE WALL
5. TANK, RAILING AND SUPPORTS TO BE PAINTED AS PER SPECIFICATION

OVERFLOW TANK DETAIL
NTS

1:40 0 0.8 2.4m

	Issue / Revision	Date
1	ISSUED FOR 99% SUBMISSION	JANUARY 2013
2	ISSUED FOR TENDER	FEBRUARY 2013
3	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
4	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

	OBJECT LINEWORK				
EXISTING	LEGEND – PLAN	PROPOSED	EXISTING	LEGEND – PLAN	PROPOSED

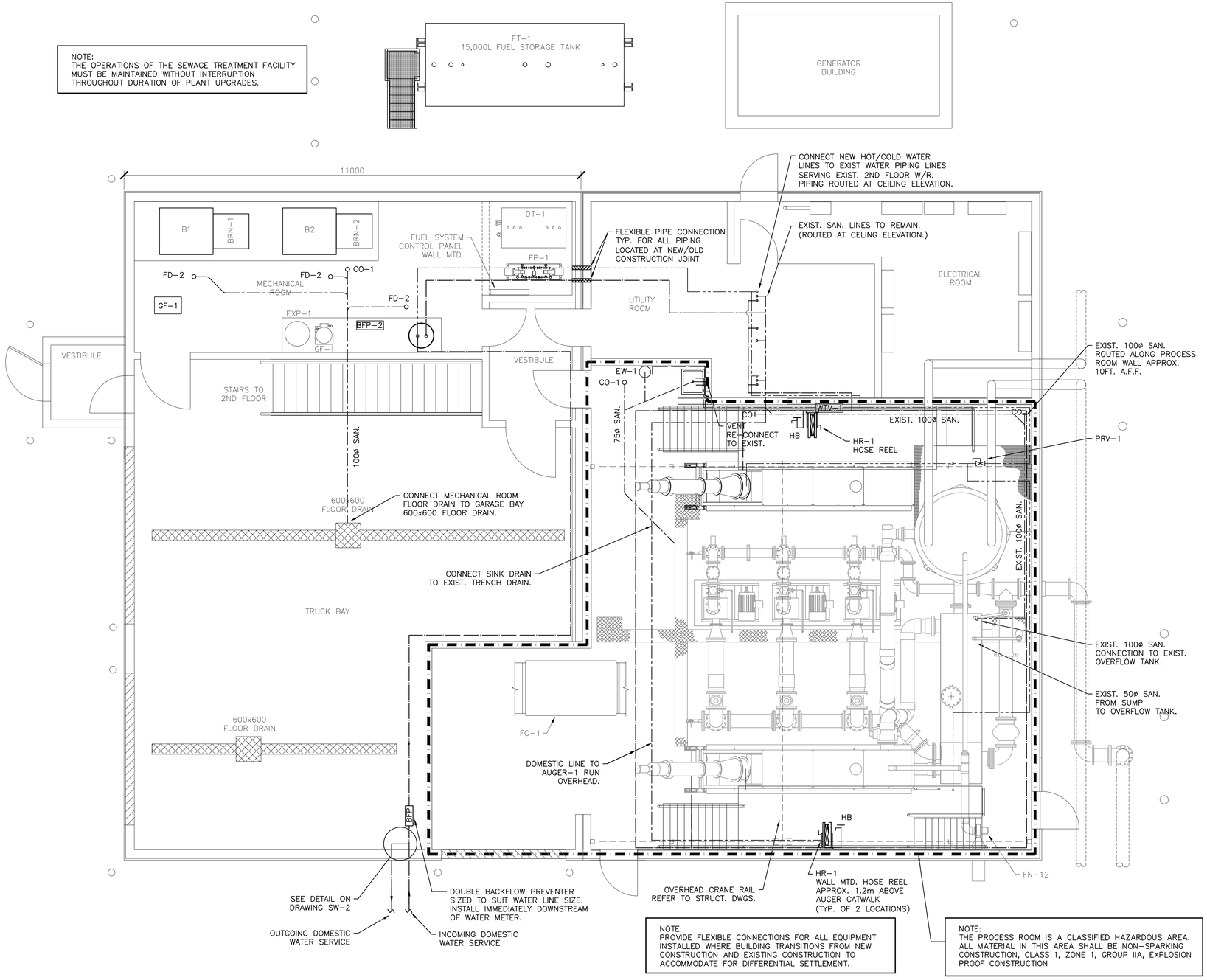
Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
SEWAGE PROCESS EQUIPMENT CROSS SECTIONS

Drawn By	Checked By	Drawing No.
G. GERUS	G. POPOWICH	M-10
Scale: AS NOTED	Project No.: 300031281	

NOTE:
THE OPERATIONS OF THE SEWAGE TREATMENT FACILITY MUST BE MAINTAINED WITHOUT INTERRUPTION THROUGHOUT DURATION OF PLANT UPGRADES.



NOTE:
PROVIDE FLEXIBLE CONNECTIONS FOR ALL EQUIPMENT INSTALLED WHERE BUILDING TRANSITIONS FROM NEW CONSTRUCTION AND EXISTING CONSTRUCTION TO ACCOMMODATE FOR DIFFERENTIAL SETTLEMENT.

NOTE:
THE PROCESS ROOM IS A CLASSIFIED HAZARDOUS AREA. ALL MATERIAL IN THIS AREA SHALL BE NON-SPARKING CONSTRUCTION, CLASS 1, ZONE 1, GROUP IIA, EXPLOSION PROOF CONSTRUCTION

MECHANICAL PLUMBING – GROUNDFLOOR PLAN
1:50

PLUMBING EQUIPMENT LIST

ITEM No.	DESCRIPTION	MF'R/MODEL
FD-1	AREA FLOOR DRAIN EPOXY COATED WITH ANCHOR FLANGE. 325x325 C/W DUCTILE IRON HINGED GRATE, INTEGRAL TRAP WITH CLEANOUT PLUG AND SEDIMENT BUCKET.	WATTS / FD-430
CO-1	DRAIN CLEAN-OUT ADJUSTABLE, DURA COATED CAST IRON BODY SIZE TO SUIT DRAIN LINE.	ZURN / Z-1400 SERIES
TSP	AUTOMATIC TRAP SEAL PRIMER PROVIDE MULTIPLE TSP'S TO LIMIT LINE LENGTHS. EVERY FLOOR DRAIN TRAP SHALL BE CONNECTED TO A PRIMER.	ZURN / Z-1022
HB-1	BRASS HOSE BIB STANDARD THREAD SIZE AS PER DRAWING.	MUELLER / 103-054
BFP	REDUCED PRESSURE BACKFLOW PREVENTER INSTALL ON DOMESTIC WATER SUPPLY TO BUILDING AND ALL OTHER POINTS OF POSSIBLE CROSS CONNECTION. SIZE: LINE SIZE	WATTS / 909
CS-1	VITREOUS CHINA SERVICE SINK C/W WALL BRACKET, DRAIN TAIL PIECE, STRAINER, S-TRAP TO FLOOR, TWO HANDLE LEVER STYLE MOEN FAUCET (MODEL 8230), AND CORROSION RESISTANT INSTALLATION HARDWARE.	CRANE / 7503S
HR-1	WALL MOUNTED STAINLESS STEEL HOSE REEL C/W NON SPARK RATCHET ASSEMBLY, STANDARD 90DEG. STAINLESS STEEL BALL BEARING SWIVEL JOINT 1/2" FEMALE NPT THREAD, STANDARD OUTLET 1/2" FEMALE NPT THREAD. ADJUSTABLE FOG NOZZLE SPRAY GUN, 5FT LEADER HOSE, 60 FT OF HOSE TO SUIT & CORROSION RESISTANT WALL MOUNT INSTALLATION HARDWARE.	HANNAY / SSN700 SERIES NOZZLE / SL100-12N
PRV-1	PRESSURE REDUCING VALVE – LOW PRESSURE VERSION. INLET PRESSURE: 586 KPA, (85 PSI) OUTLET PRESSURE: 195 KPA, (28 PSI) FLOW: .95 L/s, (30 USGPM) C/W SUPPLY FLOW STRAINER	WATTS / 223-SLP
WTV-1	WATER TEMPERING VALVE. SIZE: 32mm INLETS X 32MM OUTLET,(1-1/4" INLETS X 1-1/4" OUTLET.) HOT WATER INLET TEMP: 60 °C, (140 °F) COLD WATER INLET TEMP: 4 °C, (40 °F) OUTLET TEMP. RANGE: 32 TO 82 °C (90 TO 180 °F) FLOW: 2 L/S AT 34 KPA, (30 USGPM @ 5 PSI PRESSURE DROP.) C/W INTEGRAL FLOW CHECK STOPS AND STRAINERS ON BOTH SUPPLY LINES.	WATTS / N170 M3 CSUT
EW-1	EMERGENCY EYE/FACE WASH STATION (WALL MTD.) C/W WALL BRACKET, S.S. 11" ROUND BOWL, POP OFF DUST CAP FOR EYE WASH HEAD, TAIL PIECE & TRAP.	HAWS / 7360BT
A-1	THERMOSTAT FOR HOT WATER STORAGE TANK AQUASTAT FOR HOT WATER TANK TO SUIT EXISTING JOHN WOOD MODEL CST-80, CAT. S-4080 SER. R1010F706103 HOT WATER STORAGE TANK. TEMPERATURE RANGE: 49 TO 71 °C (120 TO 160 °F)	JOHN WOOD / THERMOSTAT TO SUIT CST-80 STORAGE TANK.
A-2	HIGH LIMIT THERMOSTAT FOR HOT WATER STORAGE TANK. HIGH LIMIT AQUASTAT FOR HOT WATER TANK TO SUIT EXISTING JOHN WOOD MODEL CST-80, CAT. S-4080, SER. R1010F706103 HOT WATER STORAGE TANK. HIGH LIMIT TEMPERATURE: 82 °C (180 °F)	JOHN WOOD / HIGH LIMIT THERMOSTAT TO SUIT CST-80 STORAGE TANK.
FD-2	FLOOR DRAIN C/W TRAP PRIMER CONNECTION, NICKLE BRONZE GRATE & VANDAL PROOF SECURED TOP. 75ø CONNECTION	ZURN / ZN415-BP

PLUMBING & DRAINAGE NOTES

1. INSTALL ALL PLUMBING AND DRAINAGE SYSTEMS IN STRICT ACCORDANCE WITH THE NATIONAL PLUMBING CODE, AND TO THE REQUIREMENTS OF LOCAL AUTHORITIES.
2. SLOPE NOMINALLY HORIZONTAL DRAIN LINES AT A MINIMUM 1:100 UNLESS NOTED OTHERWISE.
3. YOKE SANITARY VENTS IN WALLS OR CEILING SPACES TO MINIMIZE BUILDING ENVELOPE PENETRATIONS. MINIMUM ROOF PENETRATION SIZE FOR VENTS IS 75ø.
4. ALL FLOOR DRAINS TO HAVE TRAP SEAL PRIMERS , LOCATION OF TRAP SEAL DIST. HEADERS TO BE DETERMINED IN THE FIELD. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR FLOOR DRAIN / PRIMER LINES FOR REVIEW PRIOR TO ANY INSTALLATION WORKS PROCEEDING.
5. HOT AND COLD WATER SUPPLY PIPING TO BE COPPER.
6. INSULATE ALL HOT AND COLD WATER LINES WITH 25mm THICK PRE-FORMED PIPE INSULATION COVERED WITH ASJ, (VAPOUR PROOF JACKET).

PIPE SCHEDULE

PIPING BURIED OR CAST IN CONCRETE

POTABLE WATER	– 75mm AND OVER --- DUCTILE IRON
(HOT & COLD)	– 62mm AND UNDER --- SCHED. 80 CPVC
SANITARY WASTE	– PVC SEWER PIPE
TRAP PRIMER LINE	– 12mm SCHED. 80 PVC

PIPING – INSIDE BUILDING

POTABLE WATER	– 62mm AND OVER --- SCHED. 80 PVC
(BELOW FLOOR SLAB)	– 50mm AND UNDER --- SCHED. 80 PVC
POTABLE WATER	– 75mm AND OVER --- DUCTILE IRON
(ABOVE FLOOR SLAB)	– 62mm AND UNDER --- SCHED. 80 CPVC
SANITARY WASTE	– ABS DWV (ABOVE FLOOR SLAB)
AND VENT	– PVC SDR35 (BELOW FLOOR SLAB)
FUEL OIL	– MILL STEEL PIPE SCHED 40

MINIMUM FIXTURE CONNECTIONS

ITEM	DESCRIPTION	PLUMBING CONNECTIONS			
		SANITARY	COLD WATER	HOT WATER	VENT
LAV	LAVATORY (ALL)	36mm	12mm	12mm	36mm
WC	WATER CLOSET (ALL)	75mm	25mm	----	36mm
TSP	TRAP SEAL PRIMER	----	12mm	----	----
FD	FLOOR DRAIN (ALL)	75mm	----	----	----

	Issue / Revision	Date
1	ISSUED FOR TENDER	FEBRUARY 2013
2	REVISED AS PER ADDENDUM 1 TO 4 AND ISSUED FOR CONSTRUCTION	APRIL 2013
3	AS-BUILT	AUGUST 2015

AS-BUILT DRAWING
AS-BUILT INFORMATION PROVIDED BY THE GENERAL CONTRACTOR:
KUDLIK CONSTRUCTION LTD.
IQALUIT, NUNAVUT

ORIGINAL STAMPED BY
G. POPOWICH
05/27/13

Nuna Burnside
Nuna Burnside Engineering & Environmental LTD.
106B Scurfield Blvd., Winnipeg, Manitoba
telephone (204) 949-7110 **fax** (204) 949-7111
web www.neeganburnside.com

Client
GOVERNMENT OF NUNAVUT
COMMUNITY & GOVERNMENT SERVICES
RANKIN INLET
SEWAGE TREATMENT PLANT

Drawing Title
GROUND FLOOR MECHANICAL PLUMBING LAYOUT

Drawn By	Checked By	Drawing No.
A.H.	D.MacK.	M-11
Scale: AS NOTED	Project No.: 300031281	